TONAL HARMONY

With an Introduction to Twentieth-Century Music

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PREFACE

Tonal Harmony, with an Introduction to Twentieth-Century Music deals with the resources and practice of Western music from the eighteenth century to the present day. In a single volume, accompanied by a one-volume Workbook, the text covers all of the factual material included within freshman and sophomore theory study at most schools.

Theory curricula vary considerably from one institution to another. Some courses are structured around the traditional study of harmony, while at other schools such topics as counterpoint, form, and popular music have been incorporated in basic theory studies. Ear training work, keyboard harmony, and other practical musicianship skills may be integrated with the study of harmony, or treated in separate courses. With these different approaches in mind, the authors have designed *Tonal Harmony* to be both flexible in usage and broad in its stylistic range and applications.

The text provides students with a comprehensive but accessible and highly practical set of tools for the understanding of music. Actual musical practice is stressed more than rules or prohibitions. Principles are explained and illustrated, and exceptions are noted.

The text begins with a thorough but concise overview of musical elements and rudiments. Part 1 includes chapters dealing with the fundamentals of music and with the spelling of diatonic triads and seventh chords in major and minor keys. The main body of the text then deals with voice leading and analysis in a diatonic context (Parts 2 and 3) and with chromaticism (Parts 4 and 5). Part 6 concludes the text with a survey of developments in the late nineteenth century and a thorough introduction to twentieth-century practices.

In its presentation of harmonic procedures, the text introduces students to the most common vocal and instrumental textures encountered in tonal music. Traditional four-part chorale settings are used to introduce many concepts, but two-part, three-part, and five-part instrumental and vocal textures are also presented in illustrations and drill work. To encourage the correlation of writing and performing skills, we have included musical examples in score and reduced-score formats, as well as charts on instrumental ranges and

transpositions. Some of the assignments ask the student to write for small ensembles suitable for performance in class. Instructors may modify these assignments to make them most appropriate for their particular situations.

The text employs a variety of techniques to clarify underlying voice leading and formal structure. These include the voice-leading reductions that follow many of the examples. Our goal has been to elucidate tonal logic at the phrase and section level as well as from one chord to the next. Abundant musical illustrations, many with commentaries, serve as a springboard for class discussion and individual understanding.

The book provides an extensive series of learning aids. A large portion of the text is devoted to Self-Tests, consisting of student-graded drills in chord spelling, part writing, and analysis, with suggested answers given in Appendix B. The Self-Tests can be used for in-class drill and discussion, in preparation for the Workbook exercises, or for independent study. Periodic Checkpoints enable students to gauge their understanding of the preceding material.

Exercises in the Workbook are closely correlated with the corresponding chapters of the text. In each chapter, the Workbook exercises begin with problems similar to those found in the Self-Tests, but also incorporate more creative types of compositional problems for those instructors who include this type of work.

Many colleagues and friends provided assistance and encouragement during the development of this text, notably Professors Douglass Green, Jerry Grigadean, and Janet McGaughey. Reviewers of the manuscript contributed many helpful suggestions; our sincere thanks are extended to Judith Allen, University of Virginia; Michael Arenson, University of Delaware; B. Glenn Chandler, Central Connecticut State College; Herbert Colvin, Baylor University; Charles Fligel, Southern Illinois University; Roger Foltz, University of Nebraska, Omaha; Albert G. Huetteman, University of Massachusetts; Hanley Jackson, Kansas State University; Marvin Johnson, University of Alabama; Frank Lorince, West Virginia University; William L. Maxson, Eastern Washington University; Leonard Ott, University of Missouri; John Pozdro, University of Kansas; Jeffrey L. Prater, Iowa State University; Russell Riepe, Southwest Texas State University; Wayne Scott, University of Colorado; Richard Soule, University of Nevada; James Stewart, Ohio University; William Toutant, California State University at Northridge; John D. White, University of Florida, Finally, we would express gratitude to our respective spouses: to Marilyn Kostka for her years of patience and support and to Bill Penn for his unfailing encouragement.

Stefan Kostka Dorothy Payne

TO THE STUDENT

HARMONY IN WESTERN MUSIC

One of the things that distinguishes Western art music from many other kinds of music is its preoccupation with harmony. In other words, just about any piece that you are apt to perform will involve more than one person playing or singing different notes at the same time—or, in the case of a keyboard player, more than one finger pushing down keys. There are exceptions, of course, such as works for unaccompanied flute, violin, and so on, but an implied harmonic background is often still apparent to the ear in such pieces.

In general, the music from cultures other than our own European-American culture is concerned less with harmony than with other aspects of music. Complexities of rhythm or subtleties of melodic variation, for example, might serve as the focal point in a particular musical culture. Even in our own music, some compositions, such as those for nonpitched percussion instruments, may be said to have little or no harmonic content, but they are the exception.

If harmony is so important in our music, it might be a good idea if we agreed on a definition of it. What does the expression sing in harmony mean to you? It probably conjures up impressions of something on the order of a barbershop quartet, or a chorus, or maybe just two people singing a song, one with the melody, the other one singing the harmony. Since harmony began historically with vocal music, this is a reasonable way to begin formulating a definition of harmony. In all of these examples, our conception of harmony involves more than one person singing at once, and the harmony is the sound that the combined voices produces.

Harmony is the sound that results when two or more pitch classes* are performed simultaneously. It is the vertical aspect of music, produced by the combination of the components of the horizontal aspect.

While this book deals with harmony and with chords, which are little samples taken out of the harmony, it would be a good idea to keep in mind that musical lines (vocal or instrumental) produce the harmony, not the reverse.

Sing through the four parts in Example 1. The soprano and tenor lines are the most melodic. The actual melody being harmonized is in the soprano, while the tenor follows along at a sixth below for a while and then ends with an eighth-note figure of its own. The bass line is strong and independent but

*Pitch class: Notes an octave apart or enharmonically equivalent belong to the same pitch class (all C's, B\$'s, and D\'\overline{a}'s, for example). There are twelve pitch classes in all.

less melodic, while the alto part is probably the least distinctive of all. These four relatively independent lines combine to create harmony, with chords occurring at the rate of approximately one per beat.

Example 1. Bach, "Herzlich lieb hab' ich dich, o Herr"



The relationship between the vertical and horizontal aspects of music is a subtle one, however, and it has fluctuated ever since the beginnings of harmony (about the ninth century). At times the emphasis has been almost entirely on independent horizontal lines, with little attention paid to the resulting chords—a tendency easily seen in the twentieth century. At other times the independence of the lines has been weakened or is absent entirely. In Example 2 the only independent lines are the sustained bass note and the melody (highest notes). The other lines merely double the melody at various intervals, creating a very nontraditional succession of chords.

Example 2. Debussy, "La Cathédrale engloutie," from Preludes, Book I

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TONAL HARMONY DEFINED

The kind of harmony that this book deals with primarily is usually called tonal harmony. The term refers to the harmonic style of music composed during the period from about 1650 to about 1900. This would include such

composers as Purcell, Bach, Handel, Haydn, Mozart, Beethoven, Schubert, Schumann, Wagner, Brahms, Tchaikovsky, and all of their contemporaries. Not that these composers all sound the same-they don't. They use different textures, timbres, ranges, rhythms, and ensembles, among other things. Even their harmonic styles differ. Yet they were all composers of tonal harmony.

And tonal harmony is not really limited to the period 1650-1900. It began evolving long before 1650, and it is still around today. Turn on your radio, go to a night club, listen to the canned music in the supermarket-it's almost all tonal harmony. Then why do we put the demise of tonal harmony at 1900? Because from about that time, most composers of "serious," or "legitimate," or "concert" music have been more interested in nontonal harmony than in tonal harmony. This does not mean that tonal harmony ceased to exist in the real world or in music of artistic merit.

Much of today's popular music is based on tonal harmony, just as Bach's music was, which means that both types have a good deal in common. First, both make use of a tonal center, a key pitch class that provides a center of gravity. Second, both types of music make use almost exclusively of major and minor scales. Third, both use chords that are tertian in structure. Tertian means "built of thirds," so a tertian chord might be C/E/G, a nontertian one C/F/B. Fourth, and very important, is that the chords built on the various scale degrees relate to each other and to the tonal center in fairly complex ways. Because each chord tends to have more or less standard roles, or functions, within a key, this characteristic is sometimes referred to as functional harmony. The details of these relationships between chords will be discussed more fully in the text; but to get an idea of what it's all about, play the chord of Example 3 on the piano.*

Example 3.



Play it several times. Roll (arpeggiate) it up and down. The "function" of this chord is clear, isn't it? Somehow, you know a lot about this chord without having to read a book about it. Play it again, and listen to where the chord "wants" to go. Then play Example 4, which will seem to follow Example 3 perfectly. This is an example of what is meant by the relationships between chords in tonal harmony and why we sometimes use the term functional harmony.

^{*}If you cannot arrange to be at a piano while reading this book, try to play through the examples just before or right after reading a particular section or chapter. Reading about music without hearing it is not only dull, it's uninformative.

Example 4.



It is important to realize that not all tonal music makes use of functional harmony—especially a good deal of the music of the twentieth century—music by composers such as Bartók and Hindemith, for example.

From our discussion we can formulate this definition of tonal harmony:

Tonal harmony refers to music with a tonal center, based on major and/or minor scales, and using tertian chords that are related to each other and to the tonal center in various ways.

USING THIS TEXT

The information in this text is organized in the traditional chapter format, but there are several additional features of which you should be aware:

Self-Tests.

Most chapters contain one or more such sections. These Self-Tests contain questions and drill material for use in independent study or classroom discussion. Suggested answers to all Self-Test problems appear in Appendix B. In many cases more than one correct answer is possible, but only one answer will be given in Appendix B. If you are in doubt about the correctness of your answer, ask your instructor.

Exercises.

After each Self-Test section, we refer to a group of Exercises to be found in the Workbook. Most of the Workbook Exercises will be similar to those in the preceding Self-Test, so refer to the Self-Test if you have questions concerning completion of the Exercises. However, the Workbook will also often contain more creative compositional problems than appeared in the Self-Test, since it would be impossible to suggest "answers" to such problems if they were used as Self-Tests.

Checkpoints.

You will occasionally encounter a Checkpoint section. These are intended to jog your memory and to help you review what you have just read. No answers are given to Checkpoint questions.

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FUNDAMENTALS

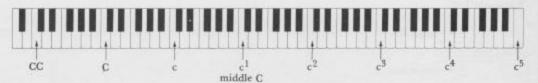


ELEMENTS OF PITCH

THE KEYBOARD AND OCTAVE REGISTERS

Pitch in music refers to the highness or lowness of a sound, Pitches are named by using the first seven letters of the alphabet: A, B, C, D, E, F, and G. We will approach the notation of pitch by relating this pitch alphabet to the piano keyboard, using C's as an example. The C nearest the middle of the keyboard is called middle C or c1 (pronounced "C one"). Higher C's (moving toward the right on the keyboard) are named c2, c3, and so on. Lower C's (moving left) are named c (small C), C (great C), and CC (contra C). All the C's on the piano are labeled in Example 1-1.

Example 1-1.



From any C up to or down to the next C is called an *octave*. All the pitches from one C up to, but not including, the next C are said to be in the same *octave register*. As Example 1-2 illustrates, the white key above c¹ would be named d¹, because it is in the same octave register, but the white key below c¹ would be named b (small B).

Example 1-2.



NOTATION ON THE STAFF

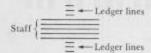
Our system of musical notation is similar to a graph in which time is indicated on the X axis and pitch is shown on the Y axis. In Example 1-3 R occurs before S in time and is higher than S in pitch.

Example 1-3.



A staff is used in music to indicate the precise pitch desired. A staff consists of five lines and four spaces, but it may be extended indefinitely through the use of ledger lines (Ex. 1-4).

Example 1-4.



A clef must appear at the beginning of the staff in order to indicate which pitches are to be associated with which lines and spaces. The three clefs commonly used today are shown in Example 1-5, and the position of c¹ in each is illustrated. Notice that the C clef appears in either of two positions.

Example 1-5.



The grand staff is a combination of two staves joined by a brace, with the top and bottom staves using treble and bass clefs, respectively. Various pitches are notated and labeled on the grand staff in Example 1-6. Pay special attention to the way in which the ledger lines are used on the grand staff. For instance, the notes c¹ and a appear twice in Example 1-6, once in relation to the top staff and once in relation to the bottom staff.

Example 1-6.



SELF-TEST 1-1*

A. Name the pitches in the blanks provided, using the correct octave register designations.



B. Notate the indicated pitches on the staff in the correct octave.

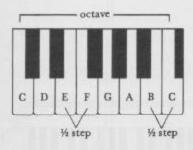


EXERCISE 1-1. See Workbook,

THE MAJOR SCALE

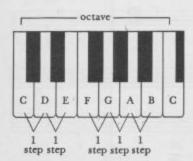
The major scale is a specific pattern of small steps (called half steps) and larger ones (called whole steps) encompassing an octave. A half step is the distance from a key on the piano to the very next key, white or black. Using only the white keys of the piano keyboard, there are two half steps in each octave (Ex. 1-7).

Example 1-7.

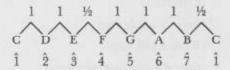


A whole step skips the very next key and goes instead to the following one. Using only the white keys of the piano keyboard, there are five whole steps in each octave (Ex. 1-8).

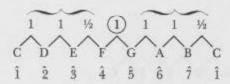
Example 1-8.



The major scale pattern of whole and half steps is the same as that found on the white keys from any C up to the next C. In the diagram below, the numbers with carats above them $(\hat{1}, \hat{2}, \text{etc.})$ are scale degree numbers for the C major scale.

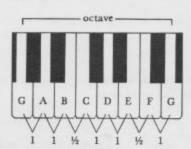


√ You can see from this diagram that half steps in the major scale occur only between scale degrees 3 and 4 and 7 and 1. Notice also that the major scale can be thought of as two identical, four-note patterns separated by a whole step:



If we examine the steps on the white keys of a G-to-G octave, as in Example 1-9, we do not find the same pattern of whole and half steps that occurred in the C-to-C octave. In order to play a G major scale, we would need to skip

Example 1-9.



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the F key and play the black key that is between F and G. We will label that key with an *accidental*, a symbol that raises or lowers a pitch by a half or whole step. All the possible accidentals are listed in this table:

Symbol	Name	Effect
×	Double sharp	Raise a whole step
#	Sharp	Raise a half step
à .	Natural	Cancel a previous accidental
b	Flat	Lower a half step
20	Double flat	Lower a whole step

We can make our G scale conform to the major scale pattern by adding one accidental, in this case a sharp:



The scale is written in musical notation in Example 1-10.

Example 1-10.



Notice that when we write or say the names of notes and accidentals, we put the accidental last (as in F# or F-sharp), but in staff notation the accidental always precedes the note that it modifies (as in Ex. 1-10).

THE MAJOR KEY SIGNATURES

One way to learn the major scales is by means of the pattern of whole and half steps discussed in the previous section. Another is by memorizing the key signatures associated with the various scales. The term key is used in music to identify the first degree of a scale. For instance, the key of G major refers to that major which begins on G. A key signature is a pattern of sharps or flats that appears at the beginning of a staff and indicates that certain notes are to be consistently raised or lowered. There are seven key signatures using sharps. In each case, the name of the major key can be found by going up a half step from the last sharp (Ex. 1-11).

Example 1-11.



There are also seven key signatures using flats. Except for the key of F major, the name of the major key is the same as the name of the next-to-last flat (Ex. 1-12).

Example 1-12.



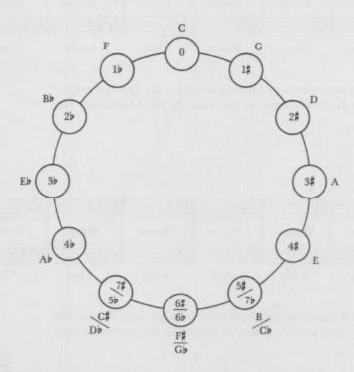
You may have noticed that there are three pairs of major keys that would sound exactly the same-that is, they would be played on the very same keys of the piano keyboard:

B major = Cb major F# major = Gb major C# major = Db major

Notes that are spelled differently but sound the same are said to be enharmonic; so B major and Cb major, for example, are enharmonic keys. If two major keys are not enharmonic, then they are transpositions of each other. To transpose means to write or play music in some key other than the original.

The key signatures in Examples 1-11 and 1-12 must be memorized—not only the number of accidentals involved, but also their placement upon the staff. Notice that the pattern of placing the sharps on the staff changes at the fifth sharp for both the treble and the bass clefs.

Some people find it easier to memorize key signatures if they visualize a circle of fifths, which is a diagram somewhat like the face of a clock. Reading clockwise around the circle of fifths below, you will see that each new key begins on 5 (the fifth scale degree) of the previous key.

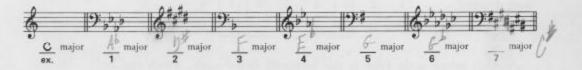


SELF-TEST 1-2

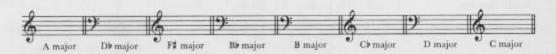
A. Notate the specified scales using accidentals, not key signatures. Show the placement of whole and half steps, as in the example.



B. Identify these major key signatures.



C. Notate the specified key signatures.



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D. Fill in the blanks.

	Key signature	Name of key	Key signatur	e Name of key
1.	Three flats	major	8.	_ B♭ major
2.	Seven sharps	niajor	9. One sharp	major
3.		D major	10. Five flats	major
4.	One flat	major	11.	F# major
5.		Ab major	12.	Cb major
6.		B major	13. Four sharps	major
7.	Six flats	major	14.	_ A major

EXERCISE 1-2. See Workbook.

MINOR SCALES

Musicians traditionally memorize and practice three minor scale formations, although they are not used with equal frequency, as we shall see in a later chapter. One of these is the *natural minor scale*. You can see from the illustration below that the natural minor scale is like a major scale with lowered $\hat{3}$, $\hat{6}$, and $\hat{7}$.*

C major	C	D	E			A		
Scale degree	î	2	3	4	ŝ	6	7	î
c natural minor	C	D	Eb	F	G	Ab	Вь	C

Another minor scale type is the harmonic minor scale, which can be thought of as major with lowered 3 and 6.

C major	C	D	E	F	G	A	В	C
Scale degree	î	2	3	â	3	6	ĵ	î
c harmonic minor	С	D	Eb	F	G	Ab	В	C

^{*}Throughout this book we will refer to major keys with upper-case letters—for example, A major or A—and minor keys with lower-case letters—for example, a minor or a.

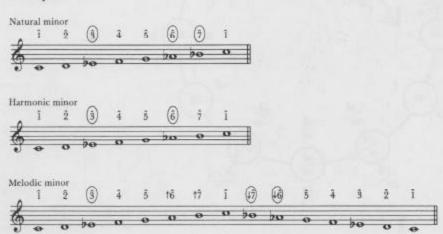
The third type of minor scale is the *melodic minor scale*, which has an ascending form and a descending form. The ascending form, shown below, is like major with a lowered $\hat{3}$.

C major	С	D	E	F	G	A	В	C
Scale degree	î	2	3	4	ŝ	Ĝ	Ŷ	î
c ascending melodic minor	C	D	Eb	F	G	A	В	C

The descending form of the melodic minor scale is the same as the natural minor scale.

The three minor scale types are summarized in Example 1-13. The scale degrees that differ from the major are circled. Notice the arrows used in connection with the melodic minor scale in order to distinguish the ascending $\hat{6}$ and $\hat{7}$ from the descending $\hat{6}$ and $\hat{7}$.

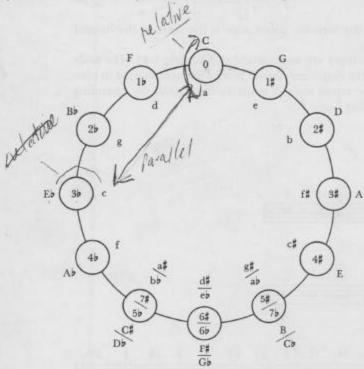
Example 1-13.



MINOR KEY SIGNATURES

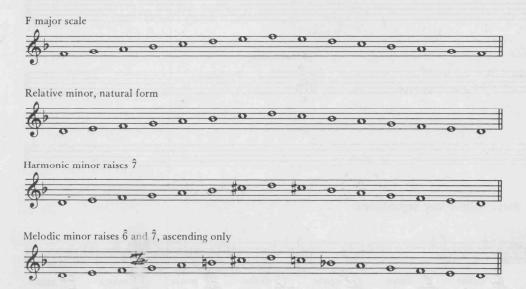
Minor key signatures conform to the natural minor scale, no matter which minor scale type is actually in use. Looking back at Example 1-13, you can see that the natural minor scale on C requires three accidentals: Bb, Eb, and Ab. The key signature of c minor, then, is the same as the key signature of Eb major; c minor and Eb major are said to be relatives, since they share the same key signature. The 3 of any minor key is 1 of its relative major and the 6 of any major key is 1 of its relative minor. If a major scale and a minor scale share the same 1, as do C major and c minor, for example, they are said to be parallels. We would say that C major is the parallel major of c minor.

The circle of fifths is a convenient way to display the names of the minor keys and their relative majors, as well as their key signatures.



You may find it easier to learn the minor scales in terms of their relative majors, as in the circle of fifths diagram above, than in terms of their parallel majors, which is how minor scales were introduced on pages 12-13. If you do use the relative major approach, remember that the key signature for any minor scale conforms to the *natural* minor scale and that accidentals must be used in order to spell the other forms. Example 1-14 illustrates the spellings for the related keys of F major and d minor.

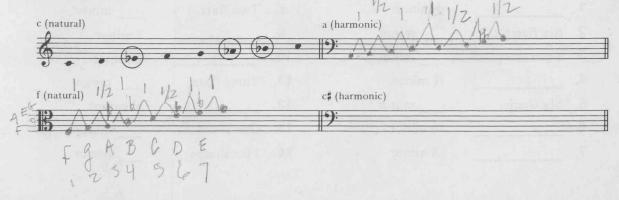
Example 1-14.



It is very important to practice faithfully all of the major and minor scales on an instrument until they become memorized patterns. An intellectual understanding of scales cannot substitute for the secure tactile and aural familiarity that will result from those hours of practice.

SELF-TEST 1-3

A. Notate the specified scales using accidentals, not key signatures. Circle the notes that differ from the parallel major scale. The melodic minor should be written both ascending and descending.



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B. Identify these minor key signatures.



C. Notate the specified minor key signatures.



D. Fill in the blanks.

	Key signature	Name of key		Key signature	Name of key
1.	واستخسار	d minor	8.	Two flats	minor
2.	Six flats	minor	9.		f minor
3.	Four sharps	minor	10.		b minor
4.		f# minor	11.	Three flats	minor
5.	Six sharps	minor	12.	- 100	ab minor
6.		bb minor	13.	One sharp	minor
7.		a# minor	14.	Five sharps	minor

EXERCISE 1-3. See Workbook.

INTERVALS

An *interval* is the measurement of the vertical (pitch) distance between two notes, as opposed to the horizontal (time) difference. A *harmonic interval* results if the notes are performed at the same time, while a *melodic interval* occurs when the notes are played successively (Ex. 1-15). The method of measuring intervals is the same for both harmonic and melodic intervals.

Example 1-15.



There are two parts to any interval name: the numerical name and the modifier that precedes the numerical name. As Example 1-16 illustrates, the numerical name is a measurement of how far apart the notes are vertically on the staff, regardless of what accidentals are involved.

Example 1-16.



In speaking about intervals we use the terms *unison* instead of 1 and *octave* (8ve) instead of 8. We also say 2nd instead of "two," 3rd instead of "three," and so on. Intervals larger than an 8ve (9th, 10th, and so on) are called *compound intervals*, while the smaller intervals (including the 8ve) are called *simple intervals*.

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SELF-TEST 1-4

Provide the numerical names of the intervals by using the numbers 1 through 8.



EXERCISE 1-4. See Workbook.

PERFECT, MAJOR, AND MINOR INTERVALS

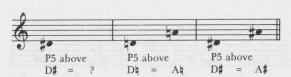
The term *perfect* (abbreviated P) is a modifier used only in connection with unisons, 4ths, 5ths, 8ves, and their compounds (11ths, and so on). As Example 1-17 illustrates, a P1, P4, P5, and P8 can all be constructed by using 1 in the major scale as the *bottom* note.

Example 1-17.



If we want to spell one of these intervals above $E\flat$, for example, we need only to think of scale steps $\hat{1}$, $\hat{4}$, and $\hat{5}$ of the $E\flat$ major scale. If the bottom note does not commonly serve as $\hat{1}$ of a major scale (such as $D\sharp$), remove the accidental temporarily, spell the interval, and then apply the accidental to both notes (Ex. 1-18).

Example 1-18.



Usually, 2nds, 3rds, 6ths, and 7ths are modified by the terms major (M) or minor (m). The intervals formed by $\hat{1}-\hat{2}$, $\hat{1}-\hat{3}$, $\hat{1}-\hat{6}$, and $\hat{1}-\hat{7}$ in the major scale are all major intervals, as Example 1-19 illustrates.

Example 1-19.



If a major interval is made a half step smaller without altering its numerical name, it becomes a minor interval (Ex. 1-20).

Example 1-20.



SELF-TEST 1-5

A. All the intervals below are unisons, 4ths, 5ths, and 8ves. Put "P" in the space provided only if the interval is a perfect interval.

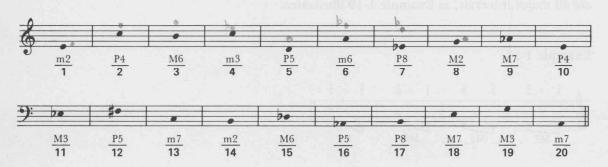


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B. All of the intervals below are 2nds, 3rds, 6ths, and 7ths. Write "M" or "m" in each space, as appropriate.



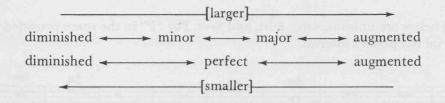
C. Notate the specified intervals above the given notes.



EXERCISE 1-5. See Workbook.

AUGMENTED AND DIMINISHED INTERVALS

If a perfect or a major interval is made a half step larger without changing the numerical name, the interval becomes *augmented* (abbreviated +). If a perfect or a minor interval is made a half step smaller without changing its numerical name, it becomes diminished (abbreviated °). These relationships are summarized below.



Doubly augmented and doubly diminished intervals are also possible, but they seldom occur. *Tritone* is a term used for +4 or its enharmonic equivalent, the °5.

INVERSION OF INTERVALS

Descending intervals, especially large ones, are easier to spell and identify through the use of *interval inversion*. We invert an interval by putting the bottom pitch above the top one; for example, the interval D-A inverts to A-D. When we invert an interval, the new numerical name is always different from the old one. The new numerical name can be calculated by subtracting the old numerical name from 9:

You can see that an inverted 2nd becomes a 7th, a 3rd becomes a 6th, and so on (Ex. 1-21).

Example 1-21.



The modifier also changes when an interval is inverted, with the exception of perfect intervals:

Old modifier	m	M	P	+	0
New modifier	M	m	P	0	+

As an example of the usefulness of inversion, suppose you wanted to know what note lies a m6 below g. Invert the m6 down to a M3 up, as in Example 1-22, transpose the b down an 8ve, and you find that the answer is B.

Example 1-22.



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Fluency with intervals, as with scales, is necessary for any serious musician and will provide a solid foundation for your further study. As you did with scales, you will benefit from finding out how various intervals sound and feel on a musical instrument.

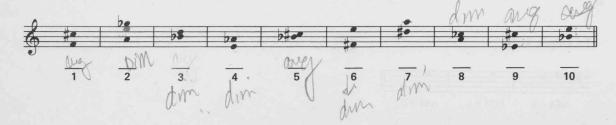
SUMMARY

Below is an outline of some of the concepts discussed in this chapter. If any of them are unfamiliar, go back and reread the appropriate discussion.

Pages	Concepts
3	Pitch; middle C; octave registers; the piano keyboard
4-5	Staff; ledger lines; clefs; grand staff
6-8	Major scale; half step; whole step; accidentals
9-10	Major key signatures; enharmonic keys; transposition
12-13	Minor scales
13-14	Minor key signatures; relative keys; parallel keys
17	Harmonic interval; melodic interval; compound and simple intervals
18-19	Perfect, major, and minor intervals
20	Diminished and augmented intervals
21	Interval inversion

SELF-TEST 1-6

A. Most of the intervals below are either augmented or diminished. Label each interval.



B. Label what each interval becomes when it is inverted.

- 1. P4 becomes
- 5. °5 becomes
- 2. M7 becomes _M 3. +2 becomes +7
- 6. m2 becomes M7
- 7. m6 becomes MB
- 4. M3 becomes M6
- 8. +6 becomes

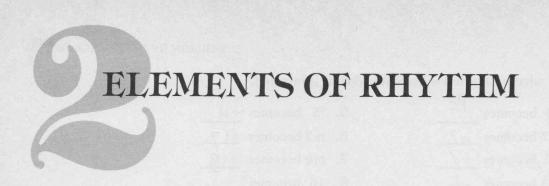
C. Notate the specified interval below the given note. (You may find it helpful to invert the interval first in some cases.)



D. Label each interval in this melody (from Wagner's Götterdämmerung).



EXERCISE 1-6. See Workbook.



RHYTHM

This chapter is concerned with the time aspect of music—how sounds are notated so that they will occur at a predictable moment and in a predetermined pattern. *Rhythm* is a general term used to refer to the time aspect of music, as contrasted with the pitch aspect.

DURATIONAL SYMBOLS

Durations are notated by using symbols that are organized so that each symbol is twice the duration of the next shorter symbol and half the duration of the next longer symbol. The table below lists a number of these symbols.

Value	Note	Rest
Breve	= 0 + 0	I = = + =
Whole	0 = 0 + 0	+-
Half	0 = 0 + 0	== 1 + 1
Quarter	= +	£ = 4 + 4
Eighth	= + 1	9 = 4 + 4
Sixteenth	A= A+ A	7 = 7 + 7

The same series could be continued to thirty-seconds, sixty-fourths, and so on. Durations other than these must be indicated through the use of ties, dots, or other symbols. A *tie* is a curved line that connects two durational

symbols, creating a new duration that is equal to their sum. A dot always adds to the duration one-half the value of the note or dot that precedes it. For example, $\int_{-\infty}^{\infty} dt dt = \int_{-\infty}^{\infty} dt dt = \int_{-\infty}^{\infty} dt dt$.

BEAT AND TEMPO

The *beat* is the basic pulse of a musical passage. To determine the beat of a passage you are listening to, tap your foot to the music or try to imagine the way a conductor would conduct the passage—the conductor's arm movement. The resulting steady pulse is called the beat, and the rate at which the beats occur is called the *tempo*.

A composer commonly specifies the tempo of a passage by one of two methods—sometimes by both. The first method uses words, often in Italian, to describe the tempo.

Italian	English	German
Largo	Broad	Breit
Lento	Slow	Langsam
Adagio	Slow	Langsam
Andante	Moderately slow	Gehend
Moderato	Moderate	Mässig
Allegretto	Moderately fast	Etwas bewegt
Allegro	Fast	Schnell
Vivace	Lively	Lebhaft
Presto	Very fast	Eilig

The second method is more exact, since it shows precisely how many beats are to occur in the space of one minute. For example, if the desired tempo would result in seventy-two quarter notes in one minute, the tempo indication would be = 72 or M.M. = 72. The M.M. stands for Maelzel's metronome, after the nineteenth-century man who promoted the device.

METER

Beats tend to be grouped into patterns that are consistent throughout a passage; the pattern of beats is called the *meter*. Groups of two, three, and four beats are the most common, although other meters occur. Incidentally,

a group of four beats could often also be interpreted as two groups of two beats each, and vice versa. In any case, the groups of beats are called *measures* (abbreviated m. or mm.), and in notation the end of a measure is always indicated by a vertical line through the staff called a *bar line*. The words *duple*, *triple*, and *quadruple* are used to refer to the number of beats in each measure, so we have *duple meter*, *triple meter*, and *quadruple meter*. These terms are summarized below, along with the pattern of stresses usually found in each meter (referred to as *metric accent*).

Grouping	Meter type	Metric accent pattern	
Two-beat measure	Duple	Strong-weak	
Three-beat measure	Triple	Strong-weak-weak	
Four-beat measure	Quadruple	Strong-weak-less strong-weak	

The meter of many passages is clear and easily identified, but in other cases the meter may be ambiguous. For example, sing "Take Me Out to the Ball Game" quite slowly while you tap your foot or conduct, then decide upon the meter type. Now sing it again, but very fast. The first time you probably felt the meter was triple, but at a faster tempo you should have identified the meter as duple (or quadruple). Between those extreme tempos are more moderate tempos, which two listeners might interpret in different ways—one hearing a faster triple meter, the other a slower duple meter. Both listeners would be correct, because identifying meter is a matter of interpretation rather than of right and wrong.

SELF-TEST 2-1

A. Show how many notes of the shorter duration would be required to equal the longer duration.

ex.
$$0 \times 2 = 0$$

1. $0 \times 2 = 0$

2. $0 \times 2 = 0$

3. $0 \times 2 = 0$

4. $0 \times 2 = 0$

5.	♪ × = J	8.	J	_ = =
6.	x = .	9.) × _	_ = •
7.	A = 1	10.	ð.	= 0

B. Sing aloud each of the songs listed below. Then identify the meter type of each, using the terms *duple*, *triple*, and *quadruple*.

1.	"Silent Night" (slow tempo)			
2.	"Jingle Bells"			
3.	"America the Beautiful"			
4.	"Seventy-Six Trombones"	elgist	daple	
5.	"Home on the Range"	Compoun	houseming and displic	

C. Scale review. Given the key and the scale degree, supply the note name. Assume the *melodic minor* form for each minor key.

ex.	f#:	4	В	8.	Bb:	4	fgantace Final
1.	Db:	Ĝ		9.	c:	↓ 6	inana ya a Galleen ha
2.	f:	ŝ	- 1	10.	e:	4	
3.	A:	ŝ		11.	Ab:	7	
4.	B:	ŝ		12.	F#:	2	
5.	g:	†ŝ	ratom Inc	13.	bb:	ŝ	gblad be
6.	c#:	$\downarrow \hat{7}$		14.	E:	Ĝ	THE ON TH
7.	Eb:	ŝ		15.	d:	↑ĵ	

EXERCISE 2-1. See Workbook.

DIVISION OF THE BEAT

In most musical passages we hear durations that are shorter than the beat. We call these shorter durations divisions of the beat. Beats generally divide either into two equal parts, called simple beat, or into three equal parts, called compound beat. Be careful not to confuse beat type, which refers to how the beat divides (simple or compound), with meter type, which refers to how the measure divides (duple, triple, or quadruple). The common beat and meter types can be combined with each other in six possible ways:

	Meter				
Beat	Duple	Triple	Quadruple		
Simple	Simple duple	Simple triple	Simple quadruple		
Compound	Compound duple	Compound triple	Compound quadruple		

For example, sing "Take Me Out to the Ball Game" quickly in duple meter, as you did in the discussion of meter on page 26. You can hear that the beats divide into thirds, so this is an example of compound duple. Do the same with "I Don't Know How to Love Him" (from Jesus Christ Superstar), and you will find that it is simple quadruple (or simple duple).

SELF-TEST 2-2

Sing aloud each of the songs listed below. Then identify the beat and meter types of each, using the terms simple duple, and so on.

1.	"Auld Lang Syne"
2.	"Pop Goes the Weasel"
3.	"Silent Night"
1.	"Jingle Bells"
5.	"Seventy-Six Trombones"

SIMPLE TIME SIGNATURES

A time signature is a symbol that tells the performer how many beats will occur in each measure, what note value will represent the beat, and whether the beat is simple or compound. A time signature for simple beat has 2, 3, or 4 as the top number. The top number indicates the number of beats in the measure; the bottom number indicates the beat note (2 = 1, 4 = 1, 8 = 1), and so on). Some typical simple time signatures are listed in the following table.

Time signature	Beats per measure	Beat note	Division of the beat
24	2	J	Л
2 or ¢	2		
3 16	3	A	月
3 4	3	J	Л
4 8	4	١	Л
4 or C	4		Л

Example 2-1 illustrates how some of the songs we have been considering might be notated. The beat values were chosen arbitrarily; "Jingle Bells," for example, could also be notated correctly in $\frac{2}{2}$ or $\frac{2}{8}$ or any other simple duple time signature.

Example 2-1.

"Jingle Bells"

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COMPOUND TIME SIGNATURES

If the beat divides into three equal parts, as in compound beat, the note value representing the beat will be a dotted value, as shown below.

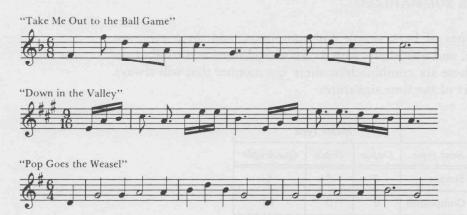
Beat note	Division of the beat
0.	111
J.	177
1	刑
A	J.

Dotted values present a problem where time signatures are concerned. For example, if there are two beats per measure, and the beat note is $\frac{1}{2}$, what would the time signature be? $\frac{2}{4}$ %? $\frac{2}{4+8}$? $\frac{2}{8+8+8}$? There is no easy solution, and the method that survives today is the source of much confusion concerning compound beat. Simply stated, a compound time signature informs the musician of the number of divisions of the beat contained in a measure and what the division duration is. This means that the top number of a compound time signature will be 6, 9, or 12, because two beats times three divisions equals six, three beats times three divisions equals nine, and four beats times three divisions equals twelve. Some examples are given in the table below.

Time signature	Beats per measure	Beat note	Division of the beat
6 8	2		J
6	2	0.	
9 16	3	1	<i></i>
9	3		
12 8	4		Л
12 4	4	0.	111

Example 2-2 illustrates some familiar tunes that use compound beat. As before, the choice of the actual beat note is an arbitrary one.

Example 2-2.



You can see from this discussion that compound time signatures do *not* follow the rule, so often learned by the student musician, that "the top number tells how many beats are in a measure, and the bottom number tells what

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note gets the beat." Of course, there are some pieces in §, for example, that really do have six beats to the measure, but such a piece is not really in compound duple. A measure of § performed in six does not sound like compound duple; instead, it sounds like two measures of simple triple, or §. To be compound duple, the listener must hear two compound beats to the measure, not six simple beats. In the same way, a slow work notated in § might be conducted in four, which would seem to the listener to be simple quadruple. In both cases, the usual division value has become the beat value:



The reverse also occurs—that is, the usual beat value sometimes becomes the actual division value. For instance, a fast waltz or scherzo is almost always notated as simple triple, usually as $\frac{3}{4}$. But the aural effect is of one beat per measure, for which we might use the term *compound single*. If you didn't know the metric convention of such pieces, you would probably assume on hearing them that they were in compound duple.

TIME SIGNATURES SUMMARIZED

There are two types of beat, simple and compound, and three common meters, duple, triple, and quadruple, which can be combined in a total of six ways. For each of these six combinations there is a number that will always appear as the top part of the time signature:

		Meter ty	pe
Beat type	Duple	Triple	Quadruple
Simple	2	3	4
Compound	6	9	12

A listener can usually recognize the beat and meter types of a passage without seeing the music. Therefore, you can usually say what the top number of

the time signature is (except that duple and quadruple are often indistinguishable). However, to know what the bottom number of the time signature is, you have to look at the music, since any number representing a note value can be used for any meter.

Bottom number	Simple beat duration	Compound beat duration
1	0	Ħ·
2	d	0.
4		J.
8)	J.
16	A);

MORE ON DURATIONAL SYMBOLS

When rhythms are notated, it is customary to use beams, ties, and dots in such a way that the metric accent is emphasized rather than obscured. Several incorrect and correct examples are notated below.

Incorrect	Correct
2 1 J J	2/ / / / / / / / / / / / / / / / / / /
§ 77.77	§ 7,7,7
12 17 1777	
4 1. 1 1771 18	4

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Of course, it is correct to notate rhythms so as to obscure the metric accent when that is the desired result. Figures such as the following are especially common in twentieth-century music.

A grouplet refers to the division of an undotted value into some number of equal parts other than two, four, eight, and so on, or the division of a dotted value into some number of equal parts other than three, six, twelve, and so on, as you can see below.

Original value	Grouplet
J	$\int_{\text{also}}^{3} \int_{\text{etc.}}^{3}$
J	J_3
J.	\int_{0}^{2}
J.	ЛŢ
	

Of all the possibilities, the superimposition of triplets on a simple beat is the most common.

When a single-stem note is notated on the staff, the stem should go up if the note is below the middle line and down if the note is above the middle line. A note on the middle line may theoretically have its stem point in either direction, but most professional copyists consistently put a downward stem on notes that occur on the middle line (Ex. 2-3).

Example 2-3.



Beams are used to connect durations shorter than a quarter note when the durations occur within the same beat. The stem direction of beamed notes is decided by the note that is farthest from the middle line. That is, if the note that is farthest from the middle line is below it, then all the stems that are to be beamed together will point upward (Ex. 2-4).

Example 2-4.



SUMMARY

Here is a list of some of the terms and concepts discussed in this chapter. If any of them are unfamiliar to you, go back to the appropriate section.

Pages	Concepts
24	Rhythm
24-25	Durational symbols; ties; dotted notes
25	Beat; tempo; foreign terms for tempos; metronome markings
25-26	Meter; measure; duple, triple, and quadruple meter; metric accent
28	Divisions of the beat; simple beat; compound beat
29-30	Time signature; simple time signatures
30-32	Compound time signatures
33-35	Grouplets; beams; stem direction

SELF-TEST 2-3

A. Fill in the blanks.

	Beat and meter type	Beat value	Division value	Time signature
1.	d notes is			4
2.	Compound triple	mate July II	mult in	luic is briow www.ed (Eg
3.				28
4.	Compound duple		ا	
5.			J	3
6.			A	12

B. Each measure below is incomplete. Add one or more rests to the end of each to complete the measure.

5. ³/₄ J

4. 16

3. 8

6. 4 0 10. 0. 1

C. Provide the best time signature for each exercise. In some cases there may be more than one correct answer possible.

symphony No. 6, Op. 68, and identify the beat and meter types of each. Then name hree time signatures that <i>could</i> have been used to notate the movement. (Note that novements I and V begin with slow introductions; wait until the allegro portions before making any decision.)	Listen to a recording of the beginning of each of the five movements of Beethoven's symphony No. 6, Op. 68, and identify the beat and meter types of each. Then name hree time signatures that could have been used to notate the movement. (Note that novements I and V begin with slow introductions; wait until the allegro portions before naking any decision.) Movement Beat type Meter type Possible time signatures I II III III III IV	disten to a recording of the beginning of each of the five movem symphony No. 6, Op. 68, and identify the beat and meter types here time signatures that could have been used to notate the monovements I and V begin with slow introductions; wait until the naking any decision.) Movement Beat type Meter type Possible time signature III III III III III	1	no		310				•																										
I II III IV	symphony No. 6, Op. 68, and identify the beat and meter types of each. Then name hree time signatures that could have been used to notate the movement. (Note that novements I and V begin with slow introductions; wait until the allegro portions before naking any decision.) Movement Beat type Meter type Possible time signatures I II III III IV	symphony No. 6, Op. 68, and identify the beat and meter types hree time signatures that could have been used to notate the monovements I and V begin with slow introductions; wait until the naking any decision.) Movement Beat type Meter type Possible time signature III III III IV	n	n	oto	e. l	Bea	am	ı t	he	111	iı	1 8	gr	01	սյ	p:	5 (of	t	hi	re	e.													
II	II	II	d i	d i	ide d h slo	ent nav	tify e b	y tl bee itro	he en od	b us uc	ea	t a	an to ns;	d n v	n o va	ta ii	et at t	e e ui	r t th	ty ne til	p n tl	es no ho	ov e a	of er all	ea ne eg	ch n ro	р	Th (N	o	n i	na tł	m	ne t	re		
IV	IV	IV			1					-																	-									
[17] [18] [18] [18] [18] [18] [18] [18] [18	[17] [18] [18] [18] [18] [18] [18] [18] [18				-					_			_										H				-									
										-																	-									

D. Each passage below is notated so that placement of the beats is obscured in some fashion.

Rewrite each one to clarify the beat placement.

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G. Scale review. Given the scale degree, the note, and whether the key is major or minor, supply the name of the key. Assume melodic minor for all minor key examples.

ex.	↑Ĝ	is	C#	in	е	minor								
1.	4	is	ВЬ	in		minor	8		ŝ	is	ВЬ	in .		major
2.	ŝ	is	В	in		major	9	. 1	6	is	G#	in	hei	minor
3.	↑ĵ	is	В#	in .		minor	10.		ŝ	is	C	in		major
4.	Ĝ	is	F#	in		major	11.	í	3	is	ВЬ	in		minor
5.	4	is	Eb	in .		major	12.	. ↓	, ?	is	E	in		minor
6.	ŝ	is	G	in		minor	13.		7	is	D#	in		major
7.	Ĝ	is	В	in		major	14.		2	is	ВЬ	in		major

H. Interval review. Notate the specified interval above the given note.



I. Interval review. Notate the specified interval below the given note.



EXERCISE 2-2. See Workbook.

CONSTRUCTION OF TRIADS AND SEVENTH CHORDS

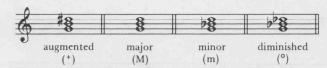
TRIADS

In the Preface to the student (which you might like to read again at this point), we explained that tonal harmony makes use of *tertian* (built of 3rds) chords. The fundamental tertian sonority is the *triad*, a three-note chord consisting of a 5th divided into two superimposed 3rds. There are four possible ways to combine major and minor 3rds to produce a tertian triad:

$$\begin{bmatrix} \bullet \\ +5 \\ \bullet \\ M3 \end{bmatrix} M3 \qquad \begin{bmatrix} \bullet \\ P5 \\ \bullet \\ M3 \end{bmatrix} M3 \qquad \begin{bmatrix} \bullet \\ P5 \\ \bullet \\ M3 \end{bmatrix} M3 \qquad \begin{bmatrix} \bullet \\ 5 \\ \bullet \\ M3 \end{bmatrix} M3$$

The names and abbreviations for these four triad types are given in Example 3-1.

Example 3-1.



Play these triads at the piano and compare the way they sound. You might be able to guess from listening to them that in tonal music the major and minor triads are found the most often, the augmented the least often. There are also names (in addition to note names) for the members of a triad (Ex. 3-2).

Example 3-2.



40 CONSTRUCTION OF TRIADS AND SEVENTH CHORDS

Study the diagram and examples above very carefully before going on.

CHECKPOINT

- 1. Which triad types contain a m3 as the bottom interval? As the top interval?
- 2. Which triad types contain a M3 as the top interval? As the bottom interval?
- 3. Which triad types contain a P5 between the root and the fifth? a $^{\circ}5$? a +5?

SELF-TEST 3-1

A. Spell the triad, given the root and type. (As with keys, upper-case letters indicate major and lower-case letters indicate minor; augmented triads are represented by upper-case letters, and diminished by lower case.)

 1. bb
 7. A

 2. E
 8. d

 3. g°
 9. Gb

 4. f°
 10. B

 5. c
 11. ab

 6. D+
 12. c#

B. Notate the triad, given the root and type.



C. Fill in the blanks.

	ex.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
Fifth	F				D#					G#	В
Third	D	A	Gb	unipi.	det	rive milal	F#	C#	(II., 1010I		anaim aga
Root	Bb		Y 10-	В		СЬ			F		
Type	M	+	m	m	+	M	0	M	0	m	M

D. Given the chord quality and one member of the triad, notate the remainder of the triad, with the root as the lowest tone.



EXERCISE 3-1. See Workbook.

SEVENTH CHORDS

If we extend a tertian triad by adding another 3rd on top of the fifth of the triad, the result is a four-note chord. Because the interval between this added note and the root is some kind of 7th (major, minor, or diminished), chords of this sort are called *seventh chords*.

Since it would be possible to use more than one kind of 7th with each triad type, there are many more seventh-chord types than triad types. However, tonal harmony commonly makes use of only five seventh-chord types (Ex. 3-3). Below each chord in Example 3-3 you will find the commonly used name for the chord and the symbol used as an abbreviation. Also given is the technical name, which is constructed by naming the triad type and the 7th type and putting a hyphen in between. Be sure to play Example 3-3 to familiarize yourself with the sound of these chords.

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Example 3-3.



Quite soon we will begin composition exercises using triads. While seventh chords will not be used in composition exercises for some time, you will nevertheless be able to start becoming familiar with them from an analytical standpoint through examples and analysis assignments.

CHECKPOINT

- 1. Which seventh-chord types have a diminished triad on the bottom? Washington
- 2. Which ones have a M3 between the fifth and the seventh of the chord?
- 3. Which ones have a m3 between the third and the fifth of the chord?
- 4. Which ones contain at least one P5? Which contain two?

SELF-TEST 3-2

A. Identify the type of each seventh chord, using the abbreviations given in Example 3-3 (M7, Dom7, m7, $^{\phi}$ 7, $^{\circ}$ 7).

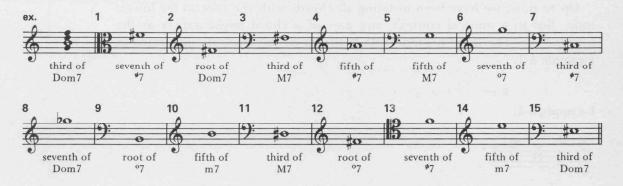




B. Notate the seventh chord, given the root and type.



C. Given the seventh chord quality and one member of the chord, notate the rest of the chord.



EXERCISE 3-2. See Workbook.

RECOGNIZING CHORDS IN TONAL MUSIC

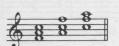
INTRODUCTION

At this point you know how to spell and notate the triads and most of the seventh-chord types used in tonal music. The next step should be to look at and listen to some tonal music in order to get used to recognizing chords in context. Before you can do that, however, you will need to understand the principle of harmonic inversion.

INVERSIONS OF TRIADS AND SEVENTH CHORDS

Up to now, we have been notating all chords with the root as the lowest tone. But in a musical context, any part of a chord might appear as the lowest tone. The three possible *bass positions* of the triad are illustrated in Example 4-1.

Example 4-1.



The bass position that we have been using, with the root as the lowest tone (or "in the bass"), is called *root position*. You might assume that "third position" would be the term for a chord with the third as the lowest tone, but musical terminology is fraught with inconsistencies. Instead, this position is called *first inversion*. Reasonably enough, *second inversion* is used for chords with the fifth in the bass. The term *inversion* is used here to mean the transfer of the lowest note to some higher octave.

Example 4-2.

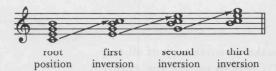


Notice that the upper notes of the chord can be spaced in any way without altering the bass position. Also, any of the notes can be duplicated (or doubled) in different octaves. All of the chords in Example 4-3 are first inversion F major triads.



The inversion of seventh chords works just like the inversion of triads, except that three inversions (four bass positions) are possible (Ex. 4-4).

Example 4-4.



INVERSION SYMBOLS

In analyzing music we often use numbers to indicate the bass positions of chords. Instead of using 1 for first inversion, 2 for second inversion, and so on, we use numbers derived from figured bass practice (see pp. 51-52) that composers once used. The table below summarizes these symbols.

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Bass position	Triad symbol	Seventh chord symbol
Root position	(none)	7
First inversion	6	65
Second inversion	6 4	4 3
Third inversion	(none)	4 or 2

Today the symbols are usually used with a roman numeral (such as I^6) as part of harmonic analysis.

RECOGNIZING CHORDS IN VARIOUS TEXTURES

Some people, especially those without much keyboard experience, find it difficult at first to analyze a chord that is distributed over two or more staves, as in Example 4-5.

Example 4-5.



One procedure to follow with the chord is to make an inventory of all the pitch classes* found in the chord (Bb, G, and D) and to notate the chord with each pitch class in turn as the lowest note. The other notes should be put as close to the bottom note as possible. The version that consists only of stacked 3rds is in root position. We can see from Example 4-6 that the chord in Example 4-5 is a g minor triad in first inversion.

*The term pitch class is used to group together all pitches that have an identical sound or that are identical except for the octave or octaves that separate them. For example, all B#'s, C's, and Db's belong to the same pitch class, no matter what octave they are found in.

Example 4-6.



The chord in Example 4-7 contains the pitch classes E, A, C#, and G, which allows four bass positions.



Example 4-8 tells us that the chord in Example 4-7 is an A dominant seventh chord in second inversion.

Example 4-8.



You may already be able to carry out this process in your head, which will speed things up considerably. If not, you will learn to do so with practice.

CHECKPOINT

1. What is the symbol for the first inversion of a triad?

2. Of a seventh chord?

2. Of a seventh chord?

3. Explain 4, 6, and 4.

4. Which bass position for which chord type requires no symbol? M/mi tarnel evol position.

Inversion symbol

A. Identify the root and type of each chord, and show the correct inversion symbol.



B. Identify the root, type, and inversion symbol for each chord. All the notes in each exercise belong to the same chord. The lowest note is the bass note for the purpose of analysis.





- C. The excerpts below are to be analyzed in a similar fashion. Each chord is numbered. Put your analysis of each chord in the numbered blanks below the excerpt.
 - 1. Schubert, Moment Musical Op. 94, No. 6



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2. Byrd, Psalm LIV*



3. Fischer, "Blumen-Strauss"



*The 8 under the treble clef on the tenor staff (third staff from the top) means that the notes are to be sung an 8ve lower than written.

FIGURED BASS SYMBOLS

The inversion symbols used in harmonic analysis were derived from the baroque system called *figured bass* or *thoroughbass*. During the baroque period (approximately 1600-1750) the keyboard player in an ensemble read from a part consisting only of a bass line and some symbols indicating the chord to be played. This is strikingly similar to the lead sheet system used today in popular music, in which the musician reads a melody line and pop symbols.

In the baroque system the symbols consisted basically of numbers representing *intervals above the bass* to be formed by the members of the chord, but the notes could actually be played in any octave above the bass. Notice that the system dealt only with intervals, not with roots of chords, because the theory of chord roots had not been devised when figured bass was first developed.

The table below illustrates the figured bass symbols for root position and inverted triads and seventh chords.

Sonority desired	2nn 8	8) 3	836	8 3	8	0834 023	.83
Complete figured bass symbol	5 3	6 3	6 4	CEGB 7 5 3	6 5 3	6 4 3	6 4 2
Symbol most often used		6	6 4	7	6 5	4 3	4 2

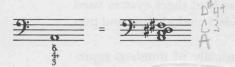
In the figured bass system, the number 6 designates a 6th above the bass. Whether it is a M6 or a m6 depends upon the key signature. If the baroque composer wished to direct the keyboard player to raise or lower a note, there were several methods that could be used, including the following three.

1. An accidental next to an arabic numeral in the figured bass could be used to raise or lower a note.

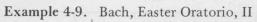
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2. An accidental by itself always referred to the 3rd above the bass and could be used to alter that note.

3. A slash or plus sign in connection with an arabic numeral meant to raise that note.



Example 4-9 illustrates a portion of an actual figured bass part from the baroque period, along with a possible *realization*. Some keyboard players may have added embellishments not shown in this realization. Bach included the numeral 5 at several places to remind the player to play a root position triad.

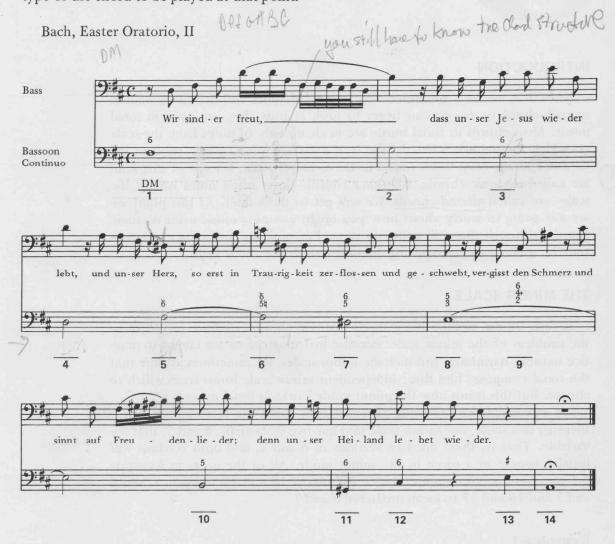




The realization of figured basses is still considered to be an effective way to learn certain aspects of tonal composition, and we will occasionally use exercises of this kind in the text.

SELF-TEST 4-2

The bottom staff of this recitative is played on bassoon and keyboard, the keyboard player realizing the figured bass. Fill in each blank below the bass line with the root and type of the chord to be played at that point.



EXERCISE 4-2. See Workbook.

DIATONIC TRIADS AND SEVENTH CHORDS

INTRODUCTION

Now that we have presented the four triad types and the five common seventh-chord types, we can begin to look at how they are used in tonal music. Most chords in tonal music are made up only of notes from the scale on which the passage is based. That is, if a passage is in G major, most of the chords contain only notes found in the G major scale. Chords of this kind are called *diatonic* chords. All other chords—those using notes not in the scale—are called *altered* chords. We will get to them later. At this point we are not going to worry about how you might *compose* music using diatonic chords, although that will come up soon. For now, we are going to concentrate on spelling and recognizing diatonic chords in various keys.

THE MINOR SCALE

Before we can begin talking about diatonic chords, we have to return to the problem of the minor scale. Because instrumentalists are taught to practice natural, harmonic, and melodic minor scales, we sometimes assume that the tonal composer had three independent minor scale forms from which to choose. But this is not how the minor mode works in tonal music.

We can make the following generalization about the three minor scales: there is, in a sense, one minor scale that has two scale steps, $\hat{6}$ and $\hat{7}$, that are variable. That is, there are two versions of $\hat{6}$ and $\hat{7}$, and both versions will usually appear in a piece in the minor mode. All of the notes in Example 5-1 are diatonic to e minor. Notice the use of $\uparrow \hat{6}$ and $\uparrow \hat{7}$ to mean raised $\hat{6}$ and $\hat{7}$ and $\downarrow \hat{6}$ and $\downarrow \hat{7}$ to mean unaltered $\hat{6}$ and $\hat{7}$.

Example 5-1.



How do composers decide which versions of $\hat{6}$ and $\hat{7}$ to use? Melodically, the most graceful thing for $\uparrow \hat{6}$ and $\uparrow \hat{7}$ to do is to ascend by step, while $\downarrow \hat{6}$ and $\downarrow \hat{7}$ tend naturally to descend by step; these tendencies conform to the melodic minor scale. Not all lines move by step, of course. If a $\hat{6}$ or $\hat{7}$ is left by leap instead of by step, there will generally be an *eventual* stepwise goal for that scale degree, and the $\hat{6}$ or $\hat{7}$ will probably be raised or left unaltered according to the direction of that goal. For instance, in Example 5-2 below, the ab^1 in m. 1 ($\hat{6}$) is left by leap to the c^2 . But the eventual stepwise goal of the ab^1 is the g^1 in the next measure, so the descending form of the melodic minor is used. Still, the use of the melodic minor is just a rule of thumb, not a law. It is not difficult to find passages in minor where $\uparrow \hat{6}$ and $\uparrow \hat{7}$ lead downward (Ex. 5-2, m. 3).

Example 5-2. Bach, Well-Tempered Clavier, Book I, Fugue 2



In some cases, $\downarrow \hat{6}$ and $\downarrow \hat{7}$ lead upward (Ex. 5-3).

Example 5-3. Bach, Well-Tempered Clavier, Book I, Prelude 10



The reasons for such exceptions to the melodic minor scale are usually harmonic. As we will see later in this chapter, the underlying harmonies usually conform to the harmonic minor scale.

CHECKPOINT

- 1. What is the term for chords that contain no notes outside of the scale? What about chords that do contain such notes?
- 2. Individual lines in tonal music tend to conform most closely to which of the three traditional minor scales?
- 3. Name the five common seventh-chord types.

DIATONIC TRIADS IN MAJOR

Triads may be constructed using any degree of the major scale as the root. Diatonic triads, as we have mentioned, will consist only of notes belonging to the scale. To distinguish the triads built upon the various scale degrees from the scale degrees themselves, we use roman numerals instead of arabic numerals (for example, V instead of $\hat{5}$). The triad type is indicated by the form of the roman numeral itself, upper case or lower case.

Triad type	Roman numeral	Example
Major	Upper case	V
Minor	Lower case	vi
Diminished	Lower case with a ⁰	vii ^o
Augmented	Upper case with a +	III+

Taking C major as an example, we can discover the types of diatonic triads that occur on each degree of the major scale:

Example 5-4.



You should memorize the following table:

Diatonic tria	id types in major
Major	I, IV, and V
Minor	ii, iii, and vi
Diminished	vii ^o
Augmented	none

DIATONIC TRIADS IN MINOR

Things are somewhat more involved in the minor mode than in major. Since $\hat{6}$ and $\hat{7}$ are variable, and because nearly all triads contain $\hat{6}$ and $\hat{7}$, more diatonic triads are possible in minor. Nonetheless, there are seven triads in minor (one for each scale degree) that occur more frequently than the others, and these are the ones we will use in our exercises for now. The roman numerals of the more common diatonic triads are circled in Example 5-5.



Notice that the *roots* of the triads circled above all belong to the *harmonic* minor scale. In fact, all of the notes of the circled triads belong to the harmonic minor scale, with the exception of the fifth of the III chord. Here is the table of minor-key triads, which you should also memorize:

Common dia	tonic triads in minor
Major	III, V, and VI
Minor	i and iv
Diminished	ii ^o and vii ^o
Augmented	none

58 DIATONIC TRIADS AND SEVENTH CHORDS

CHECKPOINT

- 1. In a major key which triads are minor?
- 2. In a minor key which triads are major?

3. The triads on which two scale degrees are the same type in both major and minor?

4. Which of the four triad types occurs least often in tonal music?

SELF-TEST 5-1

A. Given the key and the triad, supply the roman numeral. Be sure your roman numeral is of the correct type (upper case, and so on). Inversion symbols, where required, go to the upper right of the roman numeral (as in I⁶).

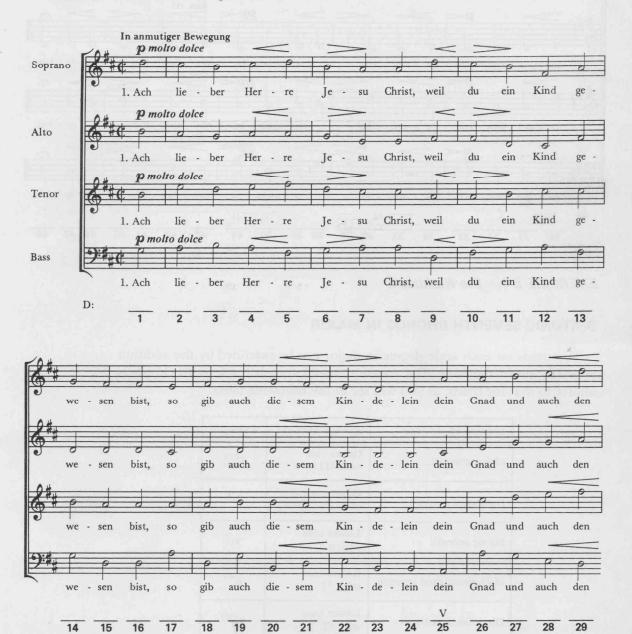


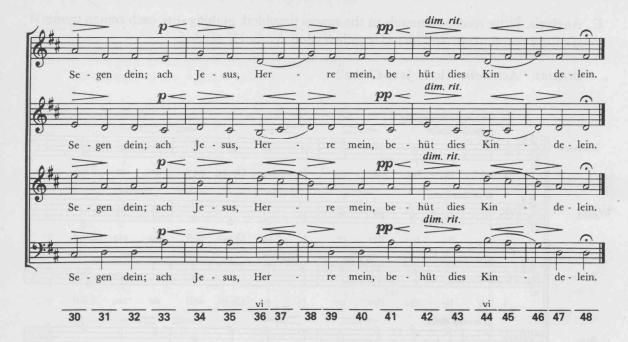
B. In the exercises below you are given the name of a key and a scale degree number. Without using key signatures, notate the triad on that scale degree and provide the roman numeral. In minor keys be sure to use the triad types circled in Example 5-5.



C. Analysis. Write roman numerals in the spaces provided, making sure each roman numeral is of the correct type and includes an inversion symbol if needed.

Brahms, "Ach lieber Herre Jesu Christ"





EXERCISE 5-1. See Workbook.

DIATONIC SEVENTH CHORDS IN MAJOR

The triads on each scale degree in major can be extended by the addition of a 7th above the root. The roman numeral system for seventh chords is similar to that for triads, as you will see in the following table.

Seventh chord type	Roman numeral	Example	
Major seventh	Upper case with M7	I ^{M7}	
Dominant seventh	Upper case with a 7	V ⁷	
Minor seventh	Lower case with a 7	vi ⁷	
Half-diminished seventh	Lower case with ^{\$\phi\$} 7	ii ^ø 7	
Diminished seventh	Lower case with ⁰ 7	vii ^o 7	

Four of the five seventh-chord types occur as diatonic seventh chords in major keys.

Example 5-6.



You should learn the following table, which summarizes major-key seventh chords:

Diaton	ic seventh chords in major
M7	IM7 and IVM7
Dom7	V ⁷
m7	ii ⁷ , iii ⁷ , and vi ⁷
\$7	vii ^ø 7
07	none

DIATONIC SEVENTH CHORDS IN MINOR

Because of the variability of $\hat{6}$ and $\hat{7}$, there are sixteen possible diatonic seventh chords in minor. Example 5-7 shows the most commonly used seventh chords on each scale degree. The others will be discussed in a later chapter. Notice that most of the notes in Example 5-7 belong to the harmonic minor scale.

Example 5-7.



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Here is the last chord table to learn:

Comm	on diatonic seventh chords in minor
M7	III ^{M7} and VI ^{M7}
Dom7	V ⁷
m7	i ⁷ and iv ⁷
φ ₇	ii ^ø 7
07	vii ^o 7

CHECKPOINT

- 1. Most of the five common seventh-chord types appear diatonically in both major and minor. Which one type does not?
- 2. Does the m7 chord occur on more scale steps in minor than in major?
- 3. The seventh chords on most scale steps are different qualities in major and minor. Which chord is the exception to this?

SELF-TEST 5-2

A. Given the key and the seventh chord, supply the roman numeral. Be sure your roman numeral is the correct type and includes inversion if applicable.





B. In the exercises below you are given the name of a key and a scale degree number. Without using key signatures, notate the seventh chord on that scale degree and provide the roman numeral. In minor keys be sure to use the chord types shown in Example 5-7.



- C. Analysis. Put roman numerals in the spaces provided, making sure each roman numeral is of the correct type and includes an inversion symbol if needed.
 - 1. Bach, "Nun lob', mein' Seel', den Herren"



2. Schumann, Chorale, Op. 68, No. 4



EXERCISE 5-2. See Workbook.

to the exercises below your are given the name of a key and a said degler number.

If the of exercises below your are given the name of a key and a said ordered and provade a

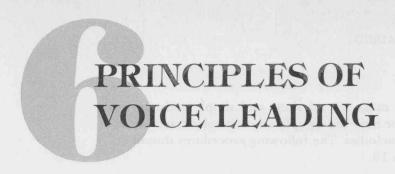
C. Analysia. Fur remem remoduly in the spaces provided, malifying measure, characted bandway were and includes an invariant symple if restricts.

A Back, "Man Lift, mein v.ack, den Herreit

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DIATONIC TRIADS





INTRODUCTION

The compositional process, being a creative one, is not entirely understood. It is reasonable to assume that a composer thinks of several aspects more or less simultaneously—melody, harmony, rhythm, and so forth. Naturally, a complete analysis of a composition must take all of these factors into account. For the most part, however, this text concentrates upon questions relating to the harmonic aspect of tonal music, since it is this aspect that most clearly delineates tonal music from other types.

We could say that the basic vocabulary of tonal harmony consists of triads and seventh chords and that its grammar involves the ways in which these chords are selected (harmonic progression) and connected (voice leading). In this chapter we will concentrate upon some of the basics of the voice-leading aspect: how does a composer write out a given succession of chords for some combination of performers? How can he or she decide in which direction each vocal or instrumental line should go?

Voice leading (or part writing) may be defined as the ways in which chords are produced by the motions of individual musical lines. A closely related term is counterpoint, which refers to the combining of relatively independent musical lines. Naturally, the style of voice leading will depend upon the composer, the musical effect desired, and the performing medium (for example, it is easier to play a large melodic interval on the piano than it is to sing it). But there are certain voice-leading norms that most composers follow most of the time, and our study will concentrate upon these norms.

For various reasons, many theory texts have based their approach to voice leading upon the style of the four-voice chorale harmonizations by J. S. Bach. While the Bach chorales epitomize the late baroque approach to choral writing, most musicians today feel the need to study other textures and styles as well. To answer this need, our study of voice leading will deal with a variety of textures in both vocal and instrumental styles.

THE MELODIC LINE

Our beginning exercises will make use of short and simple melodies in vocal style, in order to avoid for now the complications involved with more ornate vocal and instrumental melodies. The following procedures should be followed for Chapters 6 through 10.

- 1. *Rhythm*. Keep the rhythm simple, with most durations being equal to or longer than the duration of the beat. The final note should occur on a strong beat.
- 2. *Harmony*. Every melody note should belong to the chord that is to harmonize it.
- 3. Contour. The melody should be primarily conjunct (stepwise). The shape of the melody should be interesting but clear and simple, with a single focal point, the highest note of the melody.

Example 6-1a is a good example of the points discussed so far. Example 6-1b is not as good because it has an uninteresting contour. Example 6-1c, while more interesting, has two focal points (f^2) and one unharmonized tone (e^2) .

Example 6-1.



4. Leaps

a. Avoid augmented intervals, 7ths, and intervals larger than a P8. Diminished intervals may be used if the melody changes direction by step immediately after the interval.

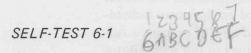
- b. A melodic interval larger than a P4 is usually best approached and left in the direction *opposite* to the leap.
- c. When smaller leaps are used consecutively in the same direction, they should outline a triad.
- 5. Tendency tones. In tonal music $\hat{7}$ has a strong tendency to move up to $\hat{1}$. An occasional exception is the scalewise line descending from $\hat{1}$: $\hat{1}$ - $\hat{7}$ - $\hat{6}$ - $\hat{5}$. The only other tendency tone that needs to be considered is $\hat{4}$, which often moves down to $\hat{3}$, but not with the regularity with which $\hat{7}$ goes to $\hat{1}$.

Example 6-2a illustrates a good melody in the restricted style we are beginning with. Example 6-2b, on the other hand, breaks all of rule 4 as well as rule 5.

Example 6-2.







A. Criticize each melody in terms of the rules for simple melodics discussed under melodic



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B. Compose simple melodies that will conform to the given progressions. Slashes represent bar lines, and every chord except the last takes one beat.

1. D: I V I / IV I I / vi ii V / I /

2. e: i iv i i / V V i i / iv V i /

3. F: I V vi IV / I IV ii V / I /

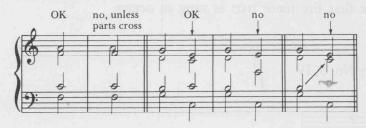
EXERCISES 6-1. See Workbook.

NOTATING CHORDS

A musical score is a tool used by a composer, conductor, or analyst. A score shows all of the parts of an ensemble arranged one above the other, enabling the experienced reader to "hear" what the composition will sound like. In a full score all or most of the parts are notated on their own individual staves. Any musician should be able both to read and to prepare a full score, and some of your theory exercises should be done in full score. But a reduced score, notated at concert pitch upon as few staves as possible, may be more practical for daily theory exercises. Your choice of full or reduced score will depend partly upon the sort of musical texture that the exercise will use. That is, if you are composing for four parts in chorale style, two staves will probably suffice. On the other hand, four active and independent instrumental lines might require four staves.

When you are notating more than one part upon a single staff, be sure that the stems of the top part always point up and those of the bottom point down, even if the parts have crossed. Example 6-3 illustrates some common notational errors. The score in this case is the familiar SATB (soprano, alto, tenor, bass) reduced score.

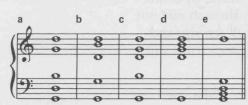
Example 6-3.



VOICING A SINGLE TRIAD

Once you have settled upon what combination of instruments and voices you are writing for and have selected the opening chord, the next consideration is voicing: how the chord is to be distributed or spaced. The way in which a chord is spaced has a great deal of influence upon its aural effect. To convince yourself of this, play Example 6-4 at the piano. Each chord in the example contains five parts and covers the same range, but the aural effects are quite different. An even wider variety of effects could be obtained by playing Example 6-4 on various combinations of instruments. While each of these spacings might be appropriate under certain circumstances, the spacing in Example 6-4e is the least commonly used because of its "muddy" effect.

Example 6-4.



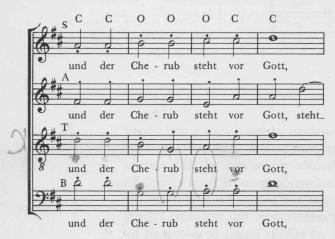
Because so much attention has been paid to four-part textures by authors of theory texts, a terminology concerning the voicing of chords in four-part textures has been developed:

Close structure: less than an octave between soprano and tenor Open structure: an octave or more between soprano and tenor

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Example 6-5 illustrates these spacings, with close structure indicated by a C, open structure by an O. Remember that the tenor part is sung an octave lower than written.

Example 6-5. Beethoven, Symphony No. 9, IV

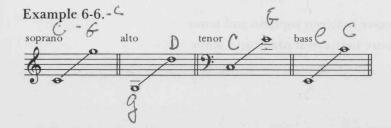


In your beginning part-writing exercises, it would be advisable for you to follow two simple conventions concerning spacing:

- 1. Do not allow any part to cross above the soprano or below the bass, or the essential soprano/bass counterpoint may become unclear.
- 2. When writing for three or more parts, avoid muddy sonorities by keeping adjacent upper parts (excluding the bass) within an octave of each other. For example, in a four-part texture, there should not be more than a P8 between soprano and alto or between alto and tenor, although there might be more than a P8 between tenor and bass.

After you have gained some experience in composing, you may begin to experiment with exceptions to these conventions.

When you are composing for vocal ensembles, use the ranges given in Example 6-6.



CEGBOS A

SELF-TEST 6-2

A. Analyze the excerpt from a Bach chorale below, using roman numerals. Then show beneath each roman numeral the structure of the chord by writing "O" or "C" (see p. 72). The note in parentheses in m. 3 is not part of the chord and should be ignored for the purpose of harmonic analysis.



B. Review the two conventions concerning spacing on page 71. Then point out in the example below any places where those conventions are not followed.



C. Fill in the circled missing inner voice(s) to complete each root position triad, being sure that each note of the triad is represented. Follow the spacing conventions and stay within the range of each vocal part.



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EXERCISE 6-2. See Workbook.

PARALLELS

One of the basic goals of voice leading in tonal music is to maintain the relative independence of the individual parts. Because of this, voices moving together in parallel motion must be given special attention. Look at Example 6-7, and you will see that it consists of three versions of the i-V-i progression in the key of b. Each version uses the same chords, and each version contains parallel voice leading (indicated by the diagonal lines in the example). But only one version, Example 6-7c, would be considered acceptable by a composer of tonal music.

Example 6-7.



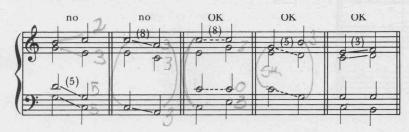
The reason Examples 6-7a and 6-7b are unacceptable in the tonal style is that they contain parallel 5ths and 8ves. Composers of tonal music generally followed the convention, dating from around 1300, of avoiding parallel 5ths and 8ves, as well as their octave equivalents, such as 12ths and unisons. Note that this does *not* rule out the *duplication* of a line at the 8ve, which was common in orchestral writing, for example (see Ex. 7-3, in which the bass

line is doubled at the 8ve, because the double basses sound a P8 lower than written). The reason for avoiding parallel 5ths and 8ves has to do with the nature of counterpoint. The P8 and P5 are the most stable of intervals, and to link two voices through parallel motion at such intervals interferes with their independence much more than would parallel motion at 3rds or 6ths. We can deduce a rule of parallel motion:

Objectionable parallels result when two parts that are separated by a P5 or a P8 or by their octave equivalents move to new pitch classes that are separated by the same interval.

Example 6-8 will help you to distinguish between objectionable and acceptable parallels. Notice that only the first two fit the definition of objectionable parallels.

Example 6-8.



Parallel 5ths and 8ves by contrary motion were also generally avoided, at least in vocal music. This means that the composer usually did not "correct" parallels (Ex. 6-9a) by moving one of the parts up or down an octave (Ex. 6-9b).

Example 6-9.



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Octaves by contrary motion are occasionally found at cadences in instrumental music and in some vocal writing, when both melody and bass outline $\hat{5}$ - $\hat{1}$. You will see that this occurs in Example 6-10, below the arrow. Notice also in Example 6-10 that some of the notes are in parentheses. In many of the examples in this book, notes that do not belong to the chord are put in parentheses. Non-chord tones will be discussed in more detail in Chapters 11 and 12.

Example 6-10. Haydn, Quartet Op. 64, No. 4, II



The term *unequal 5ths* refers to a P5 followed by a °5, or the reverse. Unequal 5ths are used occasionally (especially in the vii° of-I6 progression) and are acceptable.

Direct or hidden 5ths and 8ves occur when the outer voices move in the same direction into a P5 or P8, with a leap in the soprano part. The aural result is similar to parallel 5ths and 8ves. In Examples 6-11a and 6-11b the interval of a P5 or P8 between the outer voices is approached from the same direction with a leap in the soprano. In Example 6-11c the 5th involves the bass and alto, not the bass and soprano, while in Example 6-11d the soprano moves by step, not by leap. Both Examples 6-11c and 6-11d are correct.

Example 6-11.



The avoidance of parallels of all types was somewhat less strictly maintained in instrumental than in vocal music. In piano writing, for instance, accompaniment figures have frequently outlined 5ths or 8ves, as in Example 6-12.

Example 6-12. Mozart, Sonata K. 284, III



In most cases, such instances of parallels are confined to those textures and instrumental lines in which they are not obvious to the ear. When you attempt to compose tonal music, you should use parallel 5ths and 8ves very sparingly, if at all, and in such a way that the listener's attention will not be drawn to them. Parallels involving both of the outer parts are especially rare and should be avoided. The few instances of such parallels, such as in Example 6-13, do not contradict the general validity of the rule. Possibly Beethoven was trying to evoke a rustic, unsophisticated atmosphere through the use of the parallels—the example is, after all, from the beginning of the *Pastoral* Symphony.

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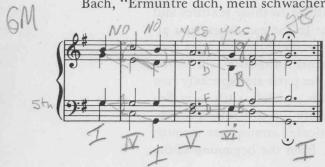
Example 6-13. Beethoven, Symphony No. 6, I



SELF-TEST 6-3

A. Label the chords in the excerpt below with roman numerals. Then label any examples of parallelism (objectionable or otherwise) that you can find.

Bach, "Ermuntre dich, mein schwacher Geist"



- B. Find and label the following errors in this example:
 - 1. Parallel 8ves
 - 2. Parallel 5ths
 - 3. Direct 5ths
 - 4. Parallel 5ths by contrary motion
 - 5. Spacing error (review pp. 71-72)



EXERCISE 6-3. See Workbook.

ROOT POSITION PART WRITING WITH REPEATED ROOTS

In this and the following three sections, some other conventions followed in writing for three, four, and five parts are discussed. In each section the traditional four-part texture will be discussed first, followed by consideration of the other textures.

When we refer to a note being doubled or tripled, we mean that two or three of the parts are given that pitch class, although not necessarily in the same octave. For example, look at the Bach excerpt in Part A of Self-Test 6-3. The root of the first chord, G, is tripled in the alto, tenor, and bass. The root of the second chord, C, is doubled in the soprano and bass.

Four-part textures

- All members of the triad are usually present. The final I chord is sometimes incomplete, consisting of a third and a tripled root.
- The root is usually doubled. The leading tone (7) is almost never doubled.

Three-part textures

- The fifth of the triad is often omitted. The final I chord may consist only of a tripled root,
- An incomplete triad will usually have the root doubled. The leading tone (7) is almost never doubled.

Five-part textures:

- 1. All triads are usually complete.
- 2. Generally double the root and the fifth or triple the root. Other doublings occur, but the leading tone (7) is almost never doubled.

When a root position triad is repeated, the upper voices may be arpegiated freely, as long as the spacing conventions are followed (review discussion of voicing a single triad, pp. 71-72). The bass may arpeggiate an octave, Example 6-14 illustrates appropriate part writing for repeated roots in various textures.

Example 6-14.



SELF-TEST 6-4 Using repeated roots.

Test your understanding of the preceding section by filling in the inner voice or voices in the second chord of each pair. The key is C major throughout.





EXERCISE 6-4. See Workbook.

ROOT POSITION PART WRITING WITH ROOTS A 5TH (4TH) APART

As you will learn in the next chapter, one of the most fundamental root movements in tonal music is that of the descending P5 (or ascending P4). The part-writing principles involved in this root movement are identical to those concerned with the ascending P5 (or descending P4). Other principles that must always be kept in mind are those concerning spacing, parallelism, and the resolution of $\hat{7}$ to $\hat{1}$ when $\hat{7}$ occurs in the melody.

Four-part textures

1. One conventional method for writing this root relationship in four parts is to keep in the same voice the tone that is common to both chords, while the remaining two upper parts move by step. The stepwise motion will be ascending for a root movement of a P5 down (Ex. 6-15a) and descending for a root movement of a P5 up (Ex. 6-15b).

Example 6-15.



2. Another conventional method moves all three upper parts in the same direction, with no leaps larger than a 3rd. The motion will be descending for a root movement of a P5 down (Ex. 6-16a) and ascending for a root movement of a P5 up (Ex. 6-16b).

Example 6-16.



Three-part textures

The more flexible nature of three-part writing makes it impossible to distill one or two conventional methods. Remember that each chord must contain at least a root and third, and observe conventions concerning spacing and parallelism (Ex. 6-17).

Example 6-17.



Five-part textures

The wide variety of possible doublings again makes it difficult to reduce the options to just a few. Remember to avoid doubling $\hat{7}$, and observe the rules of spacing and parallels, Example 6-18 illustrates some of the possibilities.

Example 6-18.



SELF-TEST 6-5 Using roots a 5th (4th) apart.

A. Add alto and tenor parts to each number below. Each progression involves roots a P5 (P4) apart. Use convention 1 or convention 2 (pp. 81-82) in each case, and state which you have used.



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B. Add an alto part to each example. Be careful to observe conventions concerning spacing, parallels, and doubling. Each triad should include at least a root and a third,



C. Add three inner parts to each example. Be careful to observe conventions concerning spacing, parallels, and doubling.



EXERCISE 6-5. See Workbook.

ROOT POSITION PART WRITING WITH ROOTS A 3RD (6TH) APART

The voice leading that involves root position triads a 3rd or 6th apart is often quite smooth, because the two triads will always have two tones in common.

Four-part textures

Assuming that the first of the two root position triads has a doubled root, only one of the upper voices will need to move. The two upper voices that have tones in common with the second chord remain stationary, while the

remaining voice moves by step. The stepwise motion will be upward for roots a descending 3rd apart (Ex. 6-19a), and downward for roots an ascending 3rd apart (Ex. 6-19b).

Example 6-19.



Three-part textures

Commonly encountered part-writing situations are more diverse in threepart textures. Some possibilities are illustrated in Example 6-20. Especially tricky is the ascending root movement. In that case, you should not omit the fifth of the second chord, for the listener may assume that the music has progressed only from a root position triad to an inverted form of the same triad (Exx. 6-20c and 6-20d).

Example 6-20.



Five-part textures

If the bass moves *up* a 3rd in a five-voice texture, the smoothest voice leading is possible only if the root is not tripled in the first chord (Ex. 6-21a). Similarly, if the bass moves *down* a 3rd, the smoothest voice leading is possible only if the fifth is not tripled in the first chord. Other combinations are possible if leaps are used, but watch out for objectionable parallels.

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Example 6-21.



SELF-TEST 6-6 Using roots a P5 (P4) and 3rd (6th) apart.

A. Add alto and tenor parts to each exercise. Use the smoothest voice leading in each case.



B. Add an alto part to each exercise. Be careful to observe the conventions concerning parallels, spacing, and doubling.



C. Add three inner parts to each exercise. Be especially careful to avoid objectionable parallels.



EXERCISE 6-6. See Workbook.

ROOT POSITION PART WRITING WITH ROOTS A 2ND (7TH) APART

Two triads with roots a 2nd (or 7th) apart have *no* tones in common, so every part must move from the first chord to the second. In this discussion we will assume that the bass moves by 2nd rather than by 7th, but voice leading is the same for a 7th down, for example, as it is for a 2nd up.

Four-part textures

If the root is doubled in the first chord, as is usually the case, then the voice leading is usually quite simple: if the bass moves up, the upper voices move down to the next chord tone (Ex. 6-22a), while if the bass moves down, the upper voices move up to the next chord tone (Ex. 6-22b).

Example 6-22.



The progression V-vi (or V-VI) presents some special problems. In most cases the third is doubled in the vi chord in this progression. This results when only two of the three upper voices (the voices containing $\hat{2}$ and $\hat{5}$) move down, while $\hat{7}$ follows its usual tendency to resolve up to $\hat{1}$. Example 6-23 illustrates the V-vi progression with the 3rd doubled in the vi chord.

Example 6-23. Bach, "O Ewigkeit, du Donnerwort"



On the other hand, if $\hat{7}$ is in an inner voice in the V chord, its need to resolve is not so apparent to the ear, and it may move down by step to $\hat{6}$ in the V-vi progression. This is not practicable in minor, however, because of the awkward +2 that results, Both of these situations are illustrated in Example 6-24. The voice leading away from a triad with a doubled third must be handled carefully, since the conventions discussed in this chapter all assumed doubled roots.

Example 6-24.



Three-part textures

The smoothest voice leading will find a complete triad followed by a triad with two roots and a third (Exx. 6-25a and 6-25b) or a triad consisting of two roots and a third followed by a complete triad (Exx. 6-25c and 6-25d). In other words, with roots a 2nd apart, the sequence will usually be complete to incomplete or incomplete to complete. Remember to resolve $\hat{7}$ to $\hat{1}$ in the V-vi progression—with the possible exception of cases in which $\hat{7}$ is in the inner voice in a major key.

Example 6-25.



Five-part textures

This is the most difficult of all the combinations discussed in this chapter. As Example 6-26 illustrates, one or more parts will be forced to leap a 4th or more. Be especially careful of direct 5ths and 8ves between soprano and bass when writing roots a 2nd apart in a five-part texture. Remember the problem of $\hat{7}$ in the V-vi progression.

Example 6-26.



SELF-TEST 6-7 Using all root relationships.

A. Complete each progression. Make three versions of each: one for three parts, one for four parts, and one for five parts.

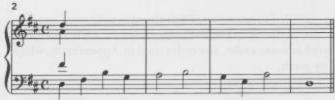


B. Fill in alto and tenor parts in these two exercises.



C. Analyze the chords specified by these figured basses. Then compose a good melody line for each. Finally, fill in alto and tenor parts to make a four-part texture.





EXERCISE 6-7. See Workbook.

INSTRUMENTAL RANGES AND TRANSPOSITIONS

Before you begin composing a theory exercise, you must consider the performing medium you are writing for. While many of your exercises may require only a piano, a classroom situation makes it possible to compose exercises for various ensembles. You should try to get to know the performing capabilities of the individual class members and the capabilities of their instruments. Range is probably the most important element to keep in mind.

Instrumental ranges are apt to vary a great deal from one performer to the next, and the capabilities of your fellow class members should not be exceeded. Appendix A gives suggested ranges for some instruments, but remember that in many cases the high and low extremes require special handling. The written range in Appendix A refers to the transpositions that must be made for some instruments when copying out the individual parts from a score notated at concert pitch. For example, the lowest tone in the Bb clarinet's range would be notated in the clarinet player's part as an e below the treble clef staff, whereas the pitch sounds at d.

One procedure to use when writing for an ensemble is this:

 Notate the sounding ranges of the performers at the top of your page of manuscript paper.

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- Compose the exercise in the form of a reduced score upon as few staves as practicable. Keep an eye on the ranges.
- Provide enough copies for the ensemble so that players will not have to huddle around a single stand. Instrumental parts should be copied onto separate sheets using correct transpositions.

SELF-TEST 6-8

A. Notate the chords below for the specified instruments. Each chord is written at concert pitch, so transpose as needed for the performers. Use the correct clef for each instrument. Note that the instruments are listed in score order, the order used in Appendix A, which is not always the same as order by pitch.



B. Here is a short chord progression to use in these exercises:

F: I vi ii V I

- Make an arrangement for two alto saxophones and one tenor saxophone. Copy out the parts, using correct transpositions.
- 2. Make a four-part arrangement for SATB chorus.

EXERCISE 6-8. See Workbook.

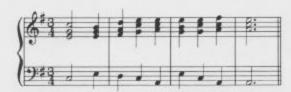
HARMONIC PROGRESSION

INTRODUCTION

Before you can begin to compose convincing tonal music or to learn anything from harmonic analyses, you must learn which chord successions are typical of tonal harmony and which ones are not. Why is it that some chord successions seem to "progress," to move forward toward a goal, while others tend to wander, to leave our expectations unfulfilled? Compare the two progressions in Example 7-1. The first was composed following the principles that will be discussed in this chapter, but the chords for the second were selected through rolling a die. While the random example has a certain freshness to it, there is no doubt that the first one sounds more typical of tonal harmony. This chapter will explore this phenomenon, but first we must turn to a topic that may well be a review rather than new material for you.

Example 7-1.





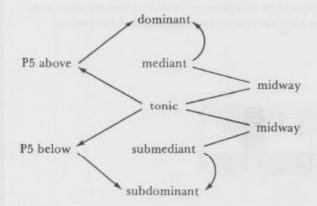
SCALE DEGREE NAMES

Musicians in conversation or in writing often refer to scale degrees by a set of traditional names rather than by numbers. The names are shown in Example 7-2. Notice that there are two names for $\hat{7}$ in minor, depending upon whether it is raised or not,

Example 7-2.



The origin of some of these names is not what you would probably expect from studying Example 7-2. For example, *subdominant* does not mean "below the dominant," as the chart below illustrates.



CHECKPOINT

Now is the time to start learning the scale degree names, if you do not know them already. Here are a couple of exercises that will help.

Translate these numbers aloud to scale degree names as fast as possible. Repeat as
often as necessary until speed is attained.

Call out the scale degrees contained in each chord below, starting with the root in each case. For example, V would be "dominant, leading tone, supertonic."

I iii vi IV vii° I ii V vi ii V I

THE I AND V CHORDS

The ultimate harmonic goal of any tonal piece is the tonic triad, and this triad is often also the goal of many of the formal subdivisions of a composition. The tonic triad is most often preceded by a V (or V⁷) chord, and it would be safe to say that V⁽⁷⁾ and I together are the most essential elements of a tonal work. It is not difficult to find examples in which the harmony for several measures consists only of I and V chords, as in Example 7-3, which Mozart composed at the age of fifteen.

Example 7-3. Mozart, Symphony K. 114, III





THE CIRCLE OF 5THS PROGRESSION AND THE SEQUENCE

The V-I progression is the prime example of a root progression of a P5 down (or P4 up), the strongest type of progression in tonal music. When a series of chords moves by descending 5ths, it is often referred to as a circle of 5ths progression. If the progression goes on long enough, and if the roots of the chords are all diatonic, as they usually are, one of the 5ths will have to be a °5 (Ex. 7-4).

Example 7-4.



Progressions of this sort often appear in sequences. A sequence is a pattern that is repeated immediately in the same voice at a different pitch level. In the sequence quoted below, the pattern appears four times, each time a step lower.

\$6DEF

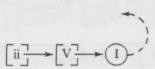
Example 7-5. Vivaldi, Concerto Grosso Op. 3, No. 11, I



Because it is so basic to tonal harmony, we will use the circle of 5ths progression to show how the other diatonic chords are used in tonal music.

THE II CHORD

If we extend our circle of 5ths progression backward one step from the V chord, we have the following progression:



This diagram illustrates the normal function of ii to progress to V and of V to progress to I. The dotted line after the I indicates that if the piece continues, the I chord might be followed by anything.

Many phrases contain only a I-ii-V-I progression. Example 7-6 shows a typical soprano/bass framework for such a progression.

Example 7-6.



F S

Play Example 7-6 and then compare it with Beethoven's version of this progression in Example 7-7. Here Beethoven uses a iig instead of a ii6.

Example 7-7. Beethoven, Minuet



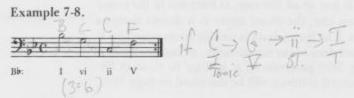
11

THE VI CHORD

One more step in the circle of 5ths brings us to the vi chord.

$$\begin{bmatrix} vi \end{bmatrix} \rightarrow \begin{bmatrix} ii \end{bmatrix} \rightarrow \begin{bmatrix} V \end{bmatrix} \rightarrow \begin{bmatrix} 1 \end{bmatrix}$$

Put in root position, this progression illustrates an ostinato (repeated) bass pattern often found in popular tunes. Play Example 7-8 and see whether it sounds familiar.



The same progression, but in minor, is seen in Example 7-9. As we will demonstrate in a later section, chord functions in minor are almost identical to those in major.

Example 7-9. Verdi, La forza del destino, Act II (piano-vocal score)



THE III CHORD

Another 5th backward brings us to the iii chord, far removed from the tonic triad.

Beginning theory students often assume that the iii chord is frequently encountered and that they should be sure to include at least one iii chord in each exercise they write. This is not at all the case, at least not in the major mode. When $\hat{3}$ is found in a bass line, the chord above it is almost always a I⁶ rather than a iii. Similarly, a $\hat{7}$ in the melody is usually harmonized by V or vii^o instead of iii. The iii chord does occur occasionally, of course. When it follows the natural descending 5ths progression, it will go to vi, as in Example 7-10. The use of the III chord in minor will be discussed on page 103.

Example 7-10. Bach, "O Ewigkeit, du Donnerwort"



THE VII CHORD

Continuing the circle of 5ths backward from iii brings us to viio, but here the system no longer applies. The viio chord is rarely found in a viio iii progression, except in sequences. Instead, viio usually acts as a substitute for V, a kind of rootless V7.

$$\left[iii\right] \longrightarrow \left[vi\right] \longrightarrow \left[ii\right] \longrightarrow \left[vii^{\circ}\right] \longrightarrow \left[vii^{\circ}\right]$$

If viio and V are used next to each other, V will usually follow the viio, since the V is the stronger sound.

The most common use of viio is in first inversion between two positions of the tonic triad: I-viio-6-I6 or I6-viio-6-I (Ex. 7-11).

Example 7-11. Handel, Messiah



THE IV CHORD

Still missing from our diagram is the IV chord, which lies a P5 below the tonic. The IV is an interesting chord because it has three common functions. In some cases, IV proceeds to a I chord, sometimes called a plagal progression. More frequently, IV is linked with ii; IV can substitute for ii (going directly to V or vii°), or IV can be followed by ii (as in IV-ii-V). These three common uses of the IV are summarized in the chord diagram.

$$[iii] \longrightarrow [vi] \longrightarrow [vii^{\circ}] \longrightarrow [$$

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In Example 7-12 the IV appears in a plagal progression. The I⁶₄ in the last measure indicates that the notes of the tonic triad are present at that point. However, the bracket with the V under it means that everything within the bracket functions as V. The I⁶₄ is actually a kind of embellishment called a cadential six-four, which will be explained further in Chapter 10.

Example 7-12. Haydn, Sonata No. 35, II



Later on in the same sonata in which Example 7-12 appears, IV is used in its pre-dominant function (Ex. 7-13).

Example 7-13. Haydn, Sonata No. 35, III



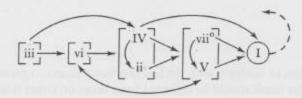
COMMON EXCEPTIONS

The chord diagram on page 101 includes all of the diatonic triads and gives a reasonably accurate picture of the chord progressions most often found in

tonal music. But to make our chart of chord functions more complete, we must include three commonly encountered exceptions to the norms discussed so far.

1. V-vi (the deceptive progression)
2. vi-V (skipping over IV or ii)
3. iii-IV (probably as common as iii-vi)

These additions are included in the diagram below, which may be considered complete for major keys. Remember that the dotted line after the I chord means that any chord may follow it.



DIFFERENCES IN THE MINOR MODE

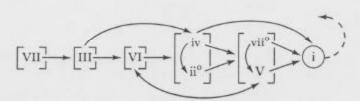
Most chords function the same way in minor as in major, However, the mediant triad, so seldom found in the major mode, is a common feature of the minor mode: it represents the relative major key, and minor-key music has a decided tendency to drift in that direction.

In addition, the variability of 6 and 7 will occasionally produce chords of different quality and function. The most important of these are the following:

> 1. The subtonic VII, sounding like the V in the key of the relative major-that is, a V of III.

→ 2. The minor v, usually v⁶, after which the ↓7 will move to ↓6, usually as part of a iv6 chord.

The first of these possibilities is included in the chord diagram below.



CONCLUSION

The last two chord diagrams are somewhat complex, but both are based on the circle of 5ths progression. Keep this in mind while you are learning them. At the same time, be aware that Bach and Beethoven did not make use of diagrams such as these. They lived and breathed the tonal harmonic style and had no need for the information the diagrams contain. Instead, the diagrams represent norms of harmonic practice observed by theorists over the years in the works of a large number of tonal composers. They do not represent rules, they are just guidelines for your use in analyzing and composing tonal music.

SELF-TEST 7-1

A. Complete each progression to conform with the last two chord diagrams presented (p. 103). The chord in the blank should be different from those on either side of it. In most cases there is more than one correct answer.

B. Bracket any portions of these progressions that do not conform to the complete major and minor chord diagrams (p. 103).

- 1. I V ii vii° I
- 2. i iv i VII i V i
- 3. I IV iii vi ii V I
- 4. I IV ii V vi ii V I

- C. Analysis. Label all chords with roman numerals, and bracket any successions of chords that do not agree with the complete major and minor chord diagrams.
 - 1. Bach, "O Herre Gott, dein göttlich Wort"



2. Vivaldi, Cello Sonata in G Minor, Sarabande*

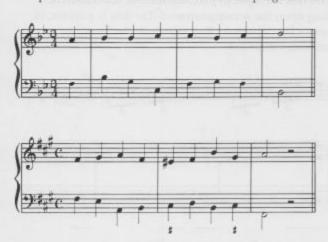
Non-chord tones in the solo part have not been put in parentheses, but the harmonic analysis can be done by concentrating upon the accompaniment. The key is g minor, in spite of what appears to be an incorrect key signature. Key signatures had not yet become standardized when this work was composed.



^{*}Unfigured bass realization by S. Kostka,



D. Analyze the chords specified by these figured basses and add inner voices to make a fourpart texture. Bracket all circle of 5ths progressions.



E. Analyze this figured bass, then add a good soprano line and inner voices. Bracket all circle of 5ths progressions.



F. Construct root position bass lines for the melodies below. Avoid diminished triads. Analyze with roman numerals as you go, making sure that the bass notes can serve as the roots of a good tonal progression and that they do not create parallel 5ths or 8ves with the melody. Finally, fill in one, two, or three inner parts.



G. Add an alto part (only) to mm. 1-2. Then compose a good soprano line for mm. 3-4 and fill in an alto part.



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H. Review. Label the chords with roman numerals and inversion symbols (where needed).



EXERCISE 7-1. See Workbook.

TRIADS IN FIRST INVERSION

INTRODUCTION

Listen to the short phrase below, paying special attention to the bass line.

Example 8-1.



It's not bad, but it could be improved. The melody line is fine, having both shape and direction, but the bass seems too repetitive and too rigid. Compare Example 8-1 with Example 8-2.

Example 8-2. Haydn, Sonata No. 33, III



Now the bass line is improved through the use of inverted chords (indicated by circled bass notes in the example). Although the harmony is the same, the inverted chords have created a bass line with a more interesting contour and with more tonal variety.

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Most phrases of tonal music contain at least one inverted chord, and the inversions usually serve the purposes that we have just demonstrated. We are not saying that a phrase without inverted chords is poorly composed—it just depends upon what effect the composer is after. For example, minuets from the classical period often contain phrases with chords that are all in root position.

BASS ARPEGGIATION

One way in which first inversion triads often originate is simply through bass arpeggiation. If you look back at the first measure of Example 8-2, you will see that d¹ is the primary bass note in the measure. The f[‡] serves the dual purpose of providing the third of the chord and of giving the bass some variety. A similar situation is found in the first two beats of the second measure. When you analyze a bass arpeggiation such as these, you should identify the arpeggiations only with arabic numerals (as in Ex. 8-2) or omit symbols altogether (as in Ex. 8-3).

Accompaniment figures in keyboard music often involve faster arpeggiations. Two examples by Haydn are shown below (Exx. 8-3 and 8-4). In both, the fundamental bass line is the one shown in the reduction. The other pitches played by the left hand should be considered as inner voices that are simply filling in the chords. They are not part of the bass line, so we would not consider these notes to be creating inversions at all.

Example 8-3. Haydn, Sonata No. 43, I



Example 8-4. Haydn, Sonata No. 45, I



Reductions such as those of Examples 8-3 and 8-4 appear throughout this text. Their purpose is to simplify the texture and make the voice leading easier to understand. Notice that in the reduction of Example 8-4 the eb² has been transposed up one octave from the original. The octave transposition helps clarify the essentially conjunct (stepwise) nature of the melodic line.

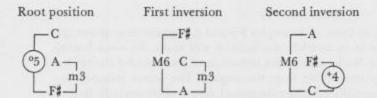
SUBSTITUTED FIRST INVERSION TRIADS

First inversion triads are often used as substitutes for root position triads, instead of coming about through bass arpeggiation. One reason for using such inversions is to improve the contour of the bass line. Another is to provide a greater variety of pitches in the bass line. A third reason is to lessen the importance of V and I chords that do not serve as goals of harmonic motion. Instances of this third type can be seen in Examples 8-3 and 8-4, where dominant chords are inverted. Example 8-5 contains a substituted inverted triad in the V⁶, which allows the ascending stepwise motion of the bass to continue. The I⁶ is an example of an arpeggiation following a structurally more important root position chord. The use of the I⁶ provides tonal variety and allows the bass to imitate the soprano figure from the previous beat.

Example 8-5. Bach, "Schmücke dich, o liebe Seele"



The diminished triad was used almost exclusively in first inversion throughout much of the tonal era. Earlier composers had considered a sonority to be acceptable only if all of the intervals above the bass were consonant, and, as the diagram illustrates, a dissonant °5 or +4 occurs above the bass of a diminished triad unless it is in first inversion.



Tonal composers, while perhaps being unaware of the historical background, accepted for a time the tradition of using the diminished triad only in first inversion.

PARALLEL SIXTH CHORDS

Most passages use a reasonable balance of root position and first inversion triads, but there are many passages in which this is not true. Some styles call for a preponderance of root position chords. On the other hand, a whole series of parallel first inversion triads (or sixth chords, from figured bass symbols) is often found, especially in sequences. Chords used in parallel motion in this way generally do not function in the usual fashion. Instead, they serve as passing chords, connecting some chord at the beginning of the passage to some chord at the end of it. In Example 8-6 the parallel motion

connects the root position I chord in m. 4 with another root position I chord in m. 7. The roman numerals in the sixth chord passage are in parentheses to show that the chords are not functioning in their usual manners.

Example 8-6. Haydn, Symphony No. 104, I



In the reduction of Example 8-6 the line in mm. 2-3 connecting d to c#1 shows that a simplified version of the bass line would have stepwise motion here (m2 down) instead of the leap. Notice also the parallel 5ths in mm. 5-7. Haydn avoided the 5ths in the original through the use of non-chord tones. The usual technique used to avoid parallel 5ths in a sixth-chord passage is to put the root of each chord in the melody, thus producing acceptable parallel 4ths instead of objectionable parallel 5ths (Ex. 8-7).

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Example 8-7.



PART WRITING FIRST INVERSION TRIADS

Composition exercises using triads in first inversion as well as in root position are much more satisfying musically than are exercises restricted to root position only. Previous suggestions concerning spacing and voice leading still apply, of course, and should be considered together with those that follow.

Two-part textures

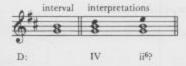
When you are composing in two parts, one member of the triad will have to be omitted, unless one part arpeggiates two tones. The omitted tone is usually the fifth, whether the chord is in root position or inverted (Ex. 8-8).

Example 8-8.



If the upper voice of an inverted triad takes the fifth of the chord, the listener will usually interpret the interval as a root position triad (Ex. 8-9).

Example 8-9.



There are some contexts, however, in which the root might be omitted, at least momentarily, without causing confusion (Ex. 8-10).

Example 8-10.



Three-part textures

All the members of the triad are usually present when the chord is inverted in three-part writing. But incomplete triads may be necessary at times in order for the composer to achieve the desired voice leading. The omitted tone is usually the fifth, since an omitted root may cause problems in interpretation (as in Ex. 8-9). Either of the remaining tones—root or third—may be doubled.

Four-part textures

Inverted triads are nearly always complete in four-part textures. Since there are four voices and only three chord members, one of the members obviously will have to be doubled. The following suggestions should prove helpful:

- In a contrapuntal texture—that is, in a texture consisting of relatively independent melodic lines—the doubling to use is the one that results from the best voice leading.
- In a homophonic texture—that is, one that is primarily chordal or consists of a melody with chordal accompaniment—the doubling selected should be the one that provides the desired musical effect.
- 3. In any texture, it is usually best not to double the leading tone.

The first of these suggestions probably needs no further explanation. Concerning the second suggestion, you should play Example 8-11, listening carefully to the different sonorities produced. If possible, you should also hear the example sung and performed by several combinations of instruments. The four parts of the example are presented in what is generally considered the order of preference on the part of composers of tonal music. However,

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this ordering is not to be interpreted as a rule. The quality of the sonority is affected as much by spacing as it is by doubling, as you will discover by comparing the last two chords in Example 8-11.

Example 8-11.



A doubled leading tone usually results in or implies parallel 8ves because of the strong tendency of $\hat{7}$ to resolve to $\hat{1}$. If you play Examples 8-12a through 8-12c, you will probably agree that Example 8-12c produces the most pleasing effect. Example 8-12a is obviously incorrect because of the parallel 8ves. But Example 8-12b, which avoids the parallels, still produces an unpleasant effect, probably because the parallels are still implied by the doubled leading tone.

Example 8-12.



This discussion of part writing for first inversion triads has been illustrated only by major and minor triads. However, the principles are equally valid for the diminished triad and for the (rare) augmented triad, as well as for textures involving more than four parts.

SUMMARY

- Triads in inversion are not at all unusual in tonal music. In fact, most phrases contain at least one.
- 2. First inversions come about either as arpeggiations or substitutions.
- 3. They are used for variety, to improve the bass line, and to lessen the weight of some I and V chords, as well as for other reasons.
- First inversion also allows the use of diminished triads (and sometimes augmented ones), since these are not commonly used in root position.
- Parallel sixth chords is one term used for a passage that features first inversion triads in parallel motion.
- If a tone must be omitted from a triad in first inversion, it should usually be the fifth.
- If a tone is to be doubled, any tone but the leading tone will do. In four parts, the preferred doublings are soprano or bass with an inner voice.

SELF-TEST 8-1

A. Analysis.

1. Bracket the longest series of parallel sixth chords you can find in this excerpt. Do not attempt a roman numeral analysis. Does the voice leading in the sixth-chord passage resemble more closely Example 8-6 or Example 8-7?

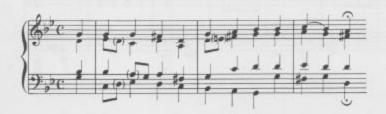
Mozart, Sonata K. 279, III





Label all chords with roman numerals. Then classify the doubling in each inverted triad according to the methods shown in Example 8-11.

Bach, "Herzliebster Jesu, was hast du"



3. Label all chords with roman numerals. Write out the contour of the bass line in quarter-note heads (without rhythm). Can you find part or all of the bass line hidden in the melody?

Beethoven, Sonata Op. 2, No. 1, I



B. The following excerpt is from Mozart's Eine kleine Nachtmusik. Supply the missing tenor line (viola part in the original), and then compare your result with Mozart's (in Appendix B).



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G:

C. Supply alto and tenor lines for the following excerpts.



IV

D. Analyze the chords specified by these figured basses, then add alto and tenor parts.



E. The excerpt below is from the Gavotte from Bach's French Suite No. 5. Supply the missing alto line (only), and then compare your result with Bach's original three-part version (Appendix B). Since this is written for a keyboard instrument, you do not need to worry about the range of the alto part.



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F. Analyze the chords implied by the soprano and bass lines below, remembering to use only triads in root position and first inversion. Then add alto and tenor parts to make a four-part texture.



G. The following example is reduced from Beethoven's Sonata Op. 79, III. Analyze the implied harmonies (more than one good solution is possible) and add two inner parts, one on each staff.



H. Continue your solution to Part E with a second four-measure segment, similar to the first.

EXERCISE 8-1. See Workbook.

CADENCES, PHRASES, AND PERIODS

MUSICAL FORM

Understanding tonal harmony requires more than the knowledge of how each chord tends to function harmonically and how the voice leading might bring the chord into being. We must also give some consideration to musical form, the ways in which a composition is shaped to create a meaningful musical experience for the listener.

A study of the forms of lengthy compositions is beyond the scope of this text. However, it will be helpful for you to learn something of the harmonic basis of the smaller building blocks that combine to produce those larger forms.

CADENCES

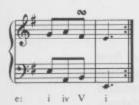
While the ultimate harmonic goal of a tonal composition is the final tonic triad, there will also be many interior harmonic goals found within the piece, some of them tonic triads and some of them not. These interior goals may be reached at a fairly regular rate (often every four measures); or sometimes their appearances may not form a pattern at all. We use the term cadence to mean a harmonic goal, specifically the chords used at the goal. There are several types of cadences commonly found in tonal music. Some cadences sound more or less conclusive, or final, while others leave us off balance, feeling a need for the music to continue.

There is a standard terminology used for classifying the various kinds of cadences, and the terms apply to both major and minor keys. One very important type of cadence consists of a tonic triad preceded by some form of V or viio. This kind of cadence is called an authentic cadence (which is an unfortunate term, since it implies that all of the others are less than authentic). The perfect authentic cadence (abbreviated PAC) consists of a V-I (or

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V7-I) progression, with both the V and the I in root position and î in the melody over the I chord (Ex. 9-1). The PAC is the most final sounding of all cadences. Most tonal compositions end with a PAC, but such cadences may also be found elsewhere in a piece.

Example 9-1. Bach, Well-Tempered Clavier, Book II, Prelude 10



An imperfect authentic cadence (IAC) is usually defined simply as any authentic cadence that is not a PAC. However, it is useful to identify several subcategories, as follows.

 Root position IAC: Like a PAC, but 3 or 5 is in the melody over the I chord (Ex. 9-2).

Example 9-2. Bach, Well-Tempered Clavier, Book II, Prelude 12



 Inverted IAC: V⁽⁷⁾-I, but with either or both of the chords inverted (Ex. 9-3).

Example 9-3. Haydn, Sonata No. 50, III



 Leading-tone IAC: Some form of vii^o-I, the vii^o substituting for a V chord (Ex. 9-4).

Example 9-4. Bach, "Ach Gott und Herr"



The root position IAC is certainly the most final sounding of the three IAC types, and you may find some compositions that end with such a cadence. The other types are limited almost exclusively to less important interior cadences.

Remember that not every V-I progression constitutes an authentic cadence. Only when the I chord seems to serve as the goal of a longer passage usually at least several measures—would we term a V-I progression a cadence. This same distinction also applies to the other cadence types.

A deceptive cadence (DC) results when the ear expects a V-I authentic cadence but hears V-? instead. The ? is usually a submediant triad, as in Example 9-5, but others are possible. A DC produces a very unstable feeling and would never be used to end a tonal work. Remember that V-vi involves special part-writing problems. Review Examples 6-11, 6-12, and 6-13.

Example 9-5. Bach, Well-Tempered Clavier, Book II, Prelude 12



The half cadence (HC) is a very common type of unstable or "progressive" cadence. The HC ends with a V chord, which can be preceded by any other chord (Ex. 9-6).

Example 9-6. Haydn, Sonata No. 44, II



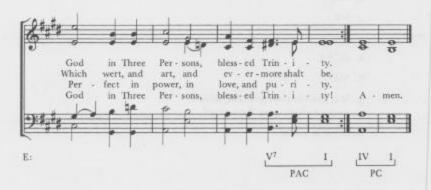
The Phrygian half cadence (Ex. 9-7) is a special name given to the iv⁶-V HC in minor. The name refers to a cadence found in the period of modal polyphony (before 1600), but it does not imply that the music is actually in the Phrygian mode.* Notice, incidentally, that Example 9-7 contains a deceptive progression (V⁷-VI), but not a deceptive cadence, since the goal of the passage is the V in m. 4, not the VI in m. 3.

Example 9-7. Schumann, "Folk Song," Op. 68, No. 9



*Modal polyphony used a number of scalar patterns seldom employed by tonal composers. One of these was the Phrygian mode, which used a scale pattern the same as E to E with no accidentals. A plagal cadence (PC) typically involves a IV-I progression. While plagal cadences are usually final sounding, they are not as important in tonal music as the authentic cadence. In fact, a plagal cadence is usually added on as a kind of tag following a PAC. A familiar example of this is the "Amen" sung at the end of hymns, as in Example 9-8.

Example 9-8. Dykes, "Holy, Holy, Holy!"



The definitions of cadence types given above are standard, for the most part, and they will apply to most cadences found in tonal music. Exceptions will be found, however, in which cases the more general definitions listed in the table below should be applied.

Cadence type	First chord	Second chord
Authentic	Contains leading tone	Tonic
Plagal	Does not contain leading tone	Tonic
Deceptive	Contains leading tone	Not tonic
Half	Does not contain leading tone	Not tonic

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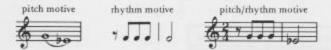
CHECKPOINT

Match the cadence-type abbreviations with the definitions listed below them.

Conclusive cadences	Definitions	
1. PAC	a. V-I, both in root position, with 3 or 5	
2. Root position IAC	in the melody over the I chord	
3. Inverted IAC	b. IV-I	
	c. ?-V	
4. Leading-tone IAC	d, V-vi	
5. PC	e. vii ⁰⁶ -I	
Progressive cadences	f. V-I ⁶	
6. HC	g. V-I, both in root position, with Î	
7. Phrygian HC	in the melody over the I chord	
8. DC	h. iv ⁶ -V in minor	

MOTIVES AND PHRASES

A motive is the smallest identifiable musical idea. A motive can consist of a pitch pattern or a rhythmic pattern, or both, as you can see below.



Of the two aspects of a pitch/rhythm motive, rhythm is probably the stronger and more easily identified when it reappears later in a composition. It is best to use *motive* only to refer to those musical ideas that are "developed" (worked out or used in different ways) in a composition.

A phrase is a relatively independent musical idea terminated by a cadence. A phrase segment is a distinct portion of a phrase, but it is not a phrase either because it is not terminated by a cadence or because it seems too short to be relatively independent. Phrases are usually labeled with lower-case letters (a, b, c, and so on), as in Example 9-9.

Example 9-9. Beethoven, Symphony No. 6, Op. 68, I



MOZART: "AN DIE FREUDE"

The concepts we have presented so far in this chapter are all well illustrated in Example 9-10. This deceptively simple song was composed by Mozart when he was eleven years old. The singer doubles the right hand of the piano part throughout, and a nice effect is obtained in performance if the left hand of the piano part is doubled by a cello or a bassoon.

Example 9-10. Mozart, "An die Freude," K. 53





Cadences occur regularly every four measures in this song, each cadence marking the end of a phrase. Since the texture contains only two lines, the chords are necessarily incomplete, but the implied harmonies at the cadences are clear enough and have been labeled for you. The cadences illustrate all of the types discussed in this chapter, with the exception of the PC. Notice that two cadences occur in the key of the dominant (C), and one occurs in

the key of the super tonic (g). Since we do not lose track aurally of the key of F as we listen to the song, it would be appropriate to refer to mm. 13-24 as embellishments of V and ii, rather than as a true change of tonal center. All the cadences are listed in the following table.

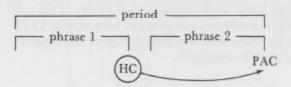
Measure	Cadence Type	Key
4	DC	F
8	Root position IAC	F
12	HC	F
16	DC	C
20	PAC	C
24	Inverted IAC	g
28	HC	F
32	Leading-tone IAC	F
36	DC	F
40	PAC	F

Many of the phrases in this song can be heard as consisting of two phrase segments. For instance, mm. 1-2 and mm. 3-4 are two segments that combine to make the first phrase, While most people would agree that the mm. 1-2 segment is too short to be a phrase, the distinction is not always clear, and it is perfectly possible for two informed musicians to disagree about a particular example.

"An die Freude" also contains motives, of course. Two of the most important are primarily rhythmic: I and II. The grace note in m. 22 is performed as an eighth note on beat 1, so m. 22 is an instance of the second motive.

PERIOD FORMS

Phrases are often combined to form a larger structural unit called a period. A period typically consists of two phrases in an antecedent-consequent (or question-answer) relationship, that relationship being established by means of a stronger cadence at the end of the second phrase. The most commonly encountered pattern is the following:



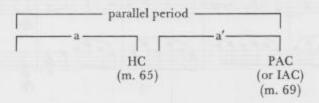
Notice that by definition the phrase endings in a period must be different. If both phrases are identical, the result is not a period but a *repeated phrase*. Repetition is important in tonal music, but it does not contribute to the growth of a musical form.

We use the term parallel period if both phrases begin with similar or identical material. Example 9-11 illustrates a parallel period. The melody is in the first violins.

Example 9-11. Brahms, Symphony No. 1, Op. 68, IV



A formal diagram of Example 9-11 would show the parallel relationship between the phrases by labeling them a and a' (pronounced "a prime"):



Sometimes the parallel relationship between phrases is not so obvious. In Example 9-12 the melody of the second phrase begins like the first, but it is a step higher. Still, the phrase beginnings are probably similar enough to call this a parallel period.

Example 9-12. Mozart, Violin Sonata K. 377, III

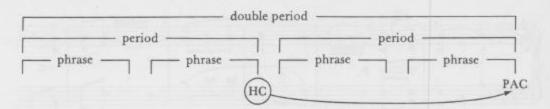


A period in which the phrase beginnings are not similar is called a *contrasting* period. Example 9-13 illustrates a contrasting period with a repeated consequent phrase, which is one way of extending the length of a period, as the diagram below illustrates.

Example 9-13. Mozart, Sonata K. 283, I



A double period consists typically of four phrases in two pairs, the cadence at the end of the second pair being stronger than the cadence at the end of the first pair:



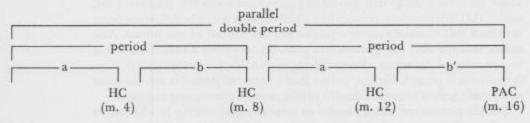
There are several things that should be pointed out about this diagram. First, notice that this structure is much like a period, with the only difference being that each half consists here of a pair of phrases instead of one phrase. Also notice that the first two phrases will probably not form a period according to our original definition. Nevertheless, each half of a double period is referred to as a period. Finally, notice that a *repeated period* is not the same as a double period because a double period requires contrasting cadences.

Double periods are called *parallel* or *contrasting* according to whether or not the melodic material that begins the two halves of the period is similar. Example 9-14 illustrates a parallel double period, and its structure is outlined in the following diagram.

Example 9-14. Beethoven, Sonata Op. 26, I







Because the first and third phrases have the same cadence, the third phrase in the diagram is labeled a, not a', even though the original a is somewhat ornamented when it returns as the third phrase.

Often, several phrases will seem to constitute a formal unit other than a period or double period. The term *phrase group* is used for such situations. Before assigning this term, however, study the music (especially the cadences) closely to see whether a passage might be analyzed as a variant of some period form.

SUMMARY

The basic definitions of most of the concepts introduced in this chapter are given below.

Musical form: the ways in which a composition is shaped to create a meaningful musical experience for the listener.

Cadence: a harmonic goal; the chords used at a harmonic goal.

Authentic cadence: some form of V or viio followed by I or I6.

Perfect authentic cadence (PAC): root position V or V⁷ followed by a root position I with 1 in the soprano over the I chord.

Imperfect authentic cadence (IAC): any authentic cadence that is not a PAC. The possibilities are root position IAC, inverted IAC, and leading-tone IAC.

Deceptive cadence (DC): V followed by something other than I, usually vi.

Half cadence: a cadence that ends on V.

Phrygian half cadence: iv6-V in minor.

Plagal cadence (PC): IV-I.

Motive: the smallest identifiable musical idea.

Phrase: a relatively independent musical idea terminated by a cadence.

Phrase segment: a distinct portion of a phrase.

Period: two phrases in an antecedent-consequent relationship, that relationship being established by means of a stronger cadence at the end of the second phrase. Parallel or contrasting according to the beginnings of the phrases.

Double period: four phrases in two pairs, the cadence at the end of the second pair being stronger than the cadence at the end of the first pair. Parallel or contrasting according to the beginnings of the first and third phrases.

Repeated phrase or period: repetition, possibly with variation, but with the same cadences. Repetition of a formal unit does not produce a new kind of formal unit.

Phrase group: two or more phrases that seem to belong to the same formal unit, but not in period or double period form.

SELF-TEST 9-1

A. Analysis. The cadence chords have been analyzed for you in each example.

 Make a diagram of this excerpt similar to the diagrams used in the text. Include phrase labels (a, b, and so on), cadence types and measure numbers, and the form of the excerpt. In addition, label the first seven chords in the first phrase. Beethoven, Sonata Op. 10, No. 3, III



Diagram the form of this excerpt. In addition, point out any sequences (review Chapter 7), either exact or modified, that occur in the melody.

Mozart, Sonata K. 284, II







3. There is certainly more than one way to interpret this famous theme. Most writers seem to prefer the three-phrase analysis shown here, the third phrase being an unusually long one (mm. 9-17). What would the form of the theme have been if it had ended in m. 8? Is there any way to hear the entire theme as an expansion of that form?

Beethoven, Sonata Op. 13, III





Diagram this excerpt, See if you can find an example of 8ves by contrary motion (review Chapter 6) between the melody and bass.

Chopin, Mazurka Op. 33, No. 2



- B. Aural analysis. Sing through the following tunes and try to imagine aurally the cadence chords, or play the tunes on the piano and try to play the cadence chords. Then make a formal diagram of each song.
 - 1. "Daisy"
 - 2. "Take Me Out to the Ball Game" (four phrases)
- C. Review. Notate the chords in the keys and bass positions indicated.



EXERCISE 9-1. See Workbook.

TRIADS IN SECOND INVERSION

INTRODUCTION

It would be logical to assume that second inversion triads are used in tonal music just as first inversion triads are: as bass arpeggiations and as substitutes for the root position. However, this is only partly true. For while both first and second inversion triads are created through bass arpeggiations, second inversion triads are not used as substitutes for the root position. The reason is that the second inversion of a triad is considered to be a much less stable sonority than either of the other two bass positions. For centuries before the development of tonal harmony, the interval of a P4 had been considered a dissonance if the *lowest voice* in the texture was sounding the bottom pitch of the P4. While each of the sonorities in Example 10-1 contains a P4 (or a P4 plus a P8), the first two are considered to be consonant because the interval of a P4 does not involve the lowest voice. The other two sonorities are dissonant in the tonal style, although our twentieth-century ears may not readily hear the dissonance.

Example 10-1.



Notice that diminished and augmented \(^6_4\) chords would also contain dissonant intervals above the bass—an +4 and a \(^64\), respectively.

Because the composers of the tonal era recognized the instability of the { (six-four) chord (the only position in which there is a 4th above the bass), the chord is not used as a substitute for the more stable root position or first inversion sonorities. It is used in bass arpeggiations, as well as in several other contexts to be described below.

BASS ARPEGGIATION

The six-four chord may come about through a bass arpeggiation involving a root position triad, a first inversion triad, or both (Ex. 10-2).

Example 10-2. Mendelssohn, Symphony No. 4, Op. 90, I



Your analysis of the "real" bass note will depend upon the context, taking into account such factors as metric placement, duration, and register.

THE CADENTIAL TONIC SIX-FOUR

Besides its appearance in a bass arpeggiation, the six-four chord tends to be used in three stereotyped contexts. If you compare the two halves of Example 10-3 below, you can see that they have much in common. Both begin with a tonic triad and end with a perfect authentic cadence. In Example 10-3b, however, the movement from ii6 to V is momentarily delayed by a If in a metrically stronger position. This is a very typical illustration of the cadential six-four, the most familiar of all six-four uses.

Example 10-3.



Examples from the literature of the cadential six-four may be seen in Example 7-12 (p. 102) and Example 8-6 (p. 113), as well as in later examples in this chapter.

Theorists have long debated whether it is better to analyze the cadential six-four as I§-V or simply as V, treating î and ŝ as non-chord tones. On the one hand, all the notes of the tonic triad are present, but on the other hand, the function of the cadential I§ is clearly decorative: it does not substitute for the root position tonic. The analytical symbols used in Example 10-3 and throughout this text are a compromise and reflect the validity of both schools of thought.

The voice leading in the upper parts into and away from the cadential I⁶₄ is usually smooth, as in Example 10-3. The most dramatic demonstration of the delaying character of the cadential I⁶₄ is found at the cadenza of many solo concertos. In such cases, the orchestra usually stops on a I⁶₄, after which the soloist performs the cadenza. No matter what the length of the cadenza, it eventually reaches V and, simultaneously with the return of the orchestra, resolves to I. In a cadenza played by a single-line instrument, the V chord will often be represented by a single tone or a trill, as in Example 10-4.

Example 10-4. Mozart, Violin Concerto K. 271a, III



One special use of the III⁺⁶ in minor is so similar to the cadential six-four that it will be discussed here. If you play the cadences in Example 10-5 and compare them, it will be obvious to you that the same principle—the momentary delay of the dominant—is operating in each case. The cadential III⁺⁶, which is not often used, is clearly a *linear event* and not part of a III⁺V progression. A cadential iii⁶ in the major mode is also a possibility, but it is not often found.

Example 10-5.



THE PASSING SIX-FOUR

Second inversion triads are frequently encountered harmonizing the middle note of a three-note scalar figure in the bass. The figure may be ascending or descending. While any triad may be used as a passing six-four chord, those in Example 10-6 are the most common and are found in both major and minor modes. The passing six-four usually falls on a weak beat and typically features smooth voice leading, as in Example 10-6. As with the cadential sixfour, some theorists prefer not to assign a roman numeral to passing six-fours because of their weak harmonic function. In this text we will indicate this weak function by putting such roman numerals in parentheses.

Example 10-6.



Example 10-7 contains both a passing I_2^6 (m, 25) and a cadential I_4^6 (m, 27) in a three-part texture. The first inversion chords in mm. 24-26 are all substituted first inversions. Notice that the melody in mm. 24-27 is simply an embellished stepwise descent from a^2 to b^1 .

Example 10-7. Mozart, Sonata K. 309, III



Longer stepwise motions in the bass often use passing six-four chords, as in Example 10-8. The reduction shows that the melody is also essentially stepwise and moves for several measures in parallel 6ths with the bass.

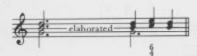
Example 10-8. Mozart, Symphony No. 40, K. 550, IV (piano score)



THE PEDAL SIX-FOUR

One way of elaborating a static root position triad is to move the third and fifth of the triad up by step then back down by step to their original positions. The sonority that results is a six-four chord (Ex. 10-9).

Example 10-9.



The next example shows the same elaboration in a more interesting musical context, Compare Example 10-9 with Example 10-10.

Example 10-10. Corelli, Concerto Grosso Op. 6, No. 8, Pastorale



Because this elaboration is similar to a pedal point (Chapter 12), it is called a pedal six-four (some theorists call it an embellishing six-four). The roman numeral beneath a pedal six-four is put in parentheses to indicate its weak harmonic function.

Example 10-11.



The bass usually remains stationary after the six-four chord, awaiting the return of the root position triad. However, a stationary bass after a six-four is not always present. In Example 10-12 the $\rm IV_4^6$ moves on to $\rm V^6$ instead of back to I.

Example 10-12, Mozart, Quartet K. 465, I



PART WRITING FOR SECOND INVERSION TRIADS

In a two-part texture the omitted tone may be either the root of the six-four chord (Ex. 10-13a) or the third (Ex. 10-13b).

Example 10-13.



150 D TRIADS IN SECOND INVERSION

In a three-part texture, it is generally best to have all members of the triad present (Ex. 10-14a). But sometimes the root or third is omitted, in which case the *fifth* is doubled (Exx. 10-14b and 10-14c).

Example 10-14.



In four or more parts, the fifth is usually the only tone doubled. Other doublings are possible, but they are not often found.

SUMMARY

This chapter has presented the contexts in which six-four chords are commonly found. Other contexts do occur, but when they are encountered, they usually can be related to one of the more common types:

- Arpeggiated six-four: Bass embellishment of a triad in root position or first inversion.
- Cadential six-four: A I⁶₄ on an accented beat, delaying a V chord. In triple meter the accented beat for the I⁶₄ will often be beat 2.
- Passing six-four: A six-four chord on the second of three stepwise bass notes. Most common are I⁶₄ and V⁶₄, usually unaccented.
- 4. Pedal six-four: A six-four chord over a stationary bass. Most common are I_4^6 and IV_4^6 , usually unaccented.

The voice leading is usually smooth in all parts, both into and away from the six-four chord; the exception is the arpeggiated six-four, which

may be treated freely. If a note is to be doubled, it is almost always the fifth of the chord (the bass note). If a chord member is to be omitted, it may be either the root or the third.

SELF-TEST 10-1

- A. Analysis. In addition to the specific instructions for each example, label each six-four chord by type.
 - Label the chords with roman numerals. Be sure to include the f#2 at the beginning of m. 69 and m. 70 as a chord member,

Mozart, Piano Sonata K. 333, III





2. Label the chords with roman numerals.

Schumann, "Little Morning Wanderer," Op. 68, No. 17



152 D TRIADS IN SECOND INVERSION

Label the chords with roman numerals and put non-chord tones in parentheses. The key of the excerpt is E major, even though the principal key of the work is A major.

Schumann, "Little Morning Wanderer," Op. 68, No. 17



B. Fill in one or two inner parts, as specified. Identify any six-four chords by type.



C. Realize these figured basses for three or four voices, as specified. Notice the frequent use of § (or the equivalent, such as §) to indicate a root position triad following an inverted chord. Analyze with roman numerals and label six-four types.



EXERCISE 10-1. See Workbook.

NON-CHORD TONES 1

RECOGNIZING NON-CHORD TONES

Many of the examples in the preceding chapters contain notes that do not belong to the chord as analyzed. In the examples these notes have been put in parentheses to emphasize the embellishing quality of such non-chord tones, as opposed to chord tones, which are structurally more important. But in order to understand tonal music we have to understand non-chord tones, since the vast majority of passages of tonal music contain at least a few of them.

A non-chord tone (abbreviated NCT) is a tone, either diatonic or chromatic, that is not a member of the chord. The tone might be an NCT throughout its duration, or, if the harmony changes before the tone does, the tone might be an NCT for only a portion of its duration.

Obviously, you have to analyze the chords before you can begin labeling the NCTs. The experienced musician can often recognize the NCTs in an unaccompanied melodic line on the basis of implied harmonies alone, Example 11-1 shows one interpretation (others are possible) of the harmonies implied by a Bach fugue subject. The reduction shows that the melody is an elaboration of a simple stepwise line.

Example 11-1. Bach, Well-Tempered Clavier, Book II, Fugue 14



Usually, however, NCT analyses based upon melodies alone are arbitrary and uninformative, so we will concentrate our efforts on multipart music.

In multipart music recognizing first the chords and then the NCTs is often quite simple, as in Example 11-2.

Example 11-2. Schubert, "Frühlingstraum," Op. 89, No. 11



Example 11-3 is a different matter, however. It is very unlikely that you would be able to determine the harmonic background of this excerpt just from looking at it, and actually it involves too many advanced harmonic concepts to allow detailed discussion of the harmonies at this time. But if you play it slowly, you will discover that the right hand lags further and further behind the left. The cadence on f# in the right hand comes three eighth notes later than the cadence on f# in the left, and the cadences on A are four eighth notes apart. Both cadences are identified in the example.

Example 11-3. Brahms, Variations on a Theme by Schumann, Op. 9, Var. 2



Once the two staves are "correctly" aligned, it becomes apparent that the texture contains no NCTs at all (except, perhaps, for the b#1). Example 11-4 brings the right hand into alignment with the left. Play through both examples slowly and compare them.

Example 11-4.



The point of this discussion is that the analysis of chords and NCTs must always be carried out simultaneously. While most NCTs are clearly recognizable as being embellishments of the basic harmony, ambiguous cases will be encountered occasionally.

CLASSIFICATION OF NON-CHORD TONES

One way of classifying NCTs is according to the ways in which they are approached and left.* The table below presents the basic definitions of the various types, along with abbreviations. Those in the top half of the table will be discussed in detail in this chapter. The others are discussed in Chapter 12.

NCT name (and abbreviation)	Approached by	Left by
Passing tone (p)	Step	Step in same direction
Neighboring tone (n)	Step	Step in opposite direction
Suspension (s)	Same tone	Step down
Retardation (r)	Same tone	Step up
Appoggiatura (app)	Leap	Step
Escape tone (e)	Step	Leap
Neighbor group (n.gr)	(See pp. 172-73)	
Anticipation (ant)	Step or leap	Same tone (or leap)
Pedal point (ped)	(See pp. 175-76)	

^{*}NCT terminology is not standardized. However, the definitions given here are widely used.

Example 11-5 provides illustrations of each of the NCT types in a twopart texture.

Example 11-5.





In addition to the basic definitions given above, NCTs can be further classified as to their duration and relative degree of accent:

- Submetrical: a fraction of a beat in duration and occurring on either accented or unaccented portions of the beat (Ex. 11-6a).
- Metrical: one beat in duration and occurring on either accented or unaccented beats (Ex. 11-6b).
- 3. Supermetrical: more than one beat in duration (Ex. 11-6c).

Example 11-6.



This terminology is admittedly cumbersome, but such considerations have much to do with the style and general effect of a passage. Remember that the beat in the definitions above is not always indicated by the bottom number of the meter signature. Other terms used in the description of NCTs include diatonic, chromatic, ascending, descending, upper, and lower. These terms will be brought up in connection with the appropriate NCTs. The remainder of this chapter is devoted to a more detailed discussion of the NCT types that do not involve leaps: passing tones, neighboring tones, suspensions, and retardations.

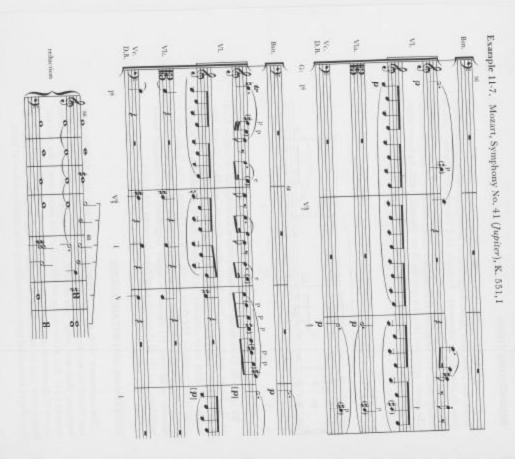
PASSING TONES

The passing tone is used to fill in the space between two other tones. The two other tones may belong either to the same or to different chords, or they might be NCTs themselves. Usually the space between them is a 3rd, either up or down, and the passing tone is given whatever scale degree lies in between. In Example 11-2 the b¹ in m. 6 is used to fill in the space between c\$2 and a¹. The b¹, then, is an accented, submetrical, diatonic, descending passing tone. You might think that this terminology is too detailed to be really useful, and you'd be right. Most of the time we would refer to the b¹ in Example 11-2 as a passing tone and let it go at that. But a good musician, while perhaps not consciously using all of the modifiers employed above, will still be aware of the possibilities and their influence upon the musical effect.

Occasionally a passing tone fills the space between two notes that are only a M2 apart. Look at Example 11-7, from the *Jupiter* Symphony. The g#2 in m. 56 is a passing tone, but the two tones that it connects, g² and a², are only a M2 apart. The g#2, then, is an unaccented, metrical, chromatic, ascending passing tone, as is the a# in the bass line in m. 58.

Still referring to Example 11-7, look at the first violin part in m. 59. The tones g^2 and d^2 , which are a P4 apart, are connected by two passing tones, $f\sharp^2$ and e^2 . In m. 61 several passing tones appear in the first violin part. Technically, the a^1 , the d^2 , and the $f\sharp^2$ are chord tones and the others are passing tones. In a functional sense, however, all of the tones after the a^1 serve as passing tones filling in the m7 between a^1 and g^2 . That ascending m7 from a^1 to g^2 is actually a continuation of a descending stepwise line, as can be seen from the reduction.

(Note that the a# in the second violin part in m. 58, is a passing tone, as analyzed. Two lines are being played simultaneously by the second violins.)



NEIGHBORING TONES

The neighboring tone is used to embellish a single tone. It may appear above the main tone (upper neighbor) or below it (lower neighbor), and it may be diatonic or chromatic. Example 11-2 contains neighboring tones in the voice line; all of them are unaccented, submetrical, diatonic, upper neighboring tones. The neighbors in Example 11-8 are all accented and submetrical. The upper neighbors (the A's and the d) are diatonic, while the lower neighbors (the F#'s and the B) are chromatic.

Example 11-8. Schumann, Scherzo Op. 32



We can only guess about Schumann's reason for using the chromatic form of the lower neighboring tone here, since diatonic neighbors would have been possible. A chromatic neighbor lends more tonal color to a passage, and it tends to draw more attention to the pitch that it is embellishing. A chromatic lower neighbor, like those above, acts as a leading tone to the tone it ornaments. As an experiment, try playing Example 11-8 four ways: (1) all diatonic neighbors, (2) chromatic upper neighbors, (3) chromatic lower neighbors, and (4) all chromatic neighbors. Compare the results.

SUSPENSIONS AND RETARDATIONS

The suspension holds on to or suspends a chord tone after the other parts have moved on to the next chord. While the suspension may not seem more important than any other type of NCT, considerably more study has been devoted to it. Part of the reason for this is that the suspension is the primary source of dissonance on the accented beat in much tonal and pretonal music. Suspensions may be submetrical, metrical, or supermetrical, but in any case, they almost always fall upon accented beats or accented portions of beats.

A special terminology has developed concerning the suspension. The preparation is the tone preceding the suspension. The suspension itself may or may not be tied to its preparation. The resolution is the tone following the suspension and lying a 2nd below it. The preparation and resolution are usually chord tones (Ex. 11-9).

Example 11-9.



Suspension terminology also provides a means of categorizing suspensions according to the vertical intervals created by the suspended tone and the resolution. For instance, in Example 11-9, the vertical interval created by the suspension is a 7th and that created by the resolution is a 6th, so the entire figure is referred to as a 7-6 suspension.

Example 11-10 summarizes the common suspensions. Notice that the second number is larger than the first only in the 2-3 suspension, a type sometimes referred to as a bass suspension. Both the 9-8 and the 4-3 suspensions are relatively uncommon in two-part textures. In the case of the 9-8, the P8 sounds unsatisfactorily hollow as a resolution of a dissonance, while the P4 in the 4-3 lacks the more pungent dissonance of the 7-6 and 2-3 suspensions. In textures involving more than two parts, the vertical intervals are calculated between the bass and the suspended part. If the bass itself is suspended, the interval is calculated between the bass and the part with which it is most dissonant (generally a 2nd or 9th above in a 2-3 suspension). With the exception of the 9-8 suspension, the note of resolution should not be present anywhere in the texture when a suspension occurs.

Example 11-10.



When a suspension occurs in one of the upper voices, the bass will sometimes move on to another chord tone at the same time as the suspension resolves. This device is referred to as a suspension with change of bass. In such a case a 7-6 suspension, for example, might become a 7-3 suspension because of the movement of the bass. It is also possible to move the upper part of the dissonance as the bass resolves in a 2-3 suspension, creating a 2-6 suspension (Ex. 11-11).

Example 11-11.



While most suspensions are dissonant, consonant suspensions do occur. Example 11-12 contains a suspension in the second measure, even though no dissonance is present.

Example 11-12.



Suspensions are very often embellished. That is, other tones, some of them chord tones and some not, may appear after the suspended tone but before the true resolution. In Example 11-13 there is an embellished 7-6 suspension at the beginning of the second measure. In other words, the g² is a suspension that resolves to f², but ornamenting tones are heard before the f² is reached. A similar figure appears at the beginning of the next measure, but here the 7th is a chord tone, part of the G² chord. In this case, the f² is a chord tone that is treated as a suspension. Such suspension figures, in which the suspension is actually a chord tone, are quite common. Notice also in this example the use of the minor v6 as a passing chord between i and iv6.

Example 11-13. Bach, French Suite No. 2, Sarabande



When the resolution of one suspension serves as the preparation for another, the resulting figure is called a chain of suspensions.



Example 11-13 above contains a chain suspension: the g^2 is suspended, resolving to f^2 , which in turn is suspended (although not as an NCT), resolving to e^{b^2} . A chain of 7-6 suspensions can be seen in Example 8-6 (p. 113).

Much of what has been said about the suspension applies also to the retardation, which is simply a suspension with an upward resolution. Retardations may occur anywhere in a passage, but they are especially common at cadences in classical style, where they appear in combination with suspensions. As in Example 11-14, the retardation usually involves 7 resolving up to 1.

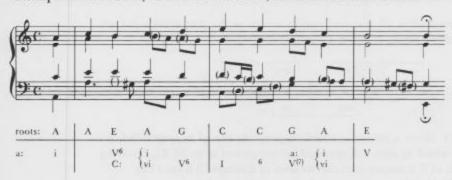
Example 11-14.



Notice in this example that the I chord begins as soon as the tonic note is reached in the bass. It would be incorrect to consider the Ab to be an anticipation on the first beat underneath continuing dominant harmony.

As if to help us summarize the suspension, Bach has provided us with a chorale phrase containing all of the common suspensions as well as a less common one. In order to help you get the most out of Example 11-15, chord roots are provided along with the functional harmonic analysis. This is because the phrase *modulates* (changes key) from a to C and back again, and we have not yet presented the ways in which modulations are analyzed. After you understand the chords, follow each voice part through, looking at the NCTs and following the discussion below the example. Finally, play through Example 11-15 and listen to the effect of the suspensions.

Example 11-15. Bach, "Danket dem Herren, denn er ist sehr freundlich"



Soprano

No NCTs

Alto

m. 1 The b¹ is a submetrical 9-8 suspension. Its resolution, a¹, becomes a submetrical 7-6 suspension on the next beat. Therefore, this is a chain of suspensions.

Tenor

m. 2 The d¹ eighth note actually represents a metrical 9-8 suspension. The suspension is ornamented by the two sixteenth notes that follow it, one of them being a chord tone that anticipates the resolution, the other being a lower neighbor. Notice that by the time the "real" resolution arrives (beat 2), the bass has moved to another chord tone, so this is a 9-6 change of bass suspension.

The b on beat 4 is an example of a relatively unusual suspension, the 2-1.

m. 3 The quarter note a represents a half note a, which is a supermetrical 4-3 suspension. The suspension is ornamented with an augmentation of the figure used to ornament the suspended d¹ in m. 2.

Bass

- m. 1 The empty parentheses on beat 2 remind us that the a is still sounding but is no longer part of the chord. This is an example of a submetrical 2-3 suspension.
- m. 2 The NCTs in this measure are unaccented, submetrical, ascending passing tones.

FIGURED BASS SYMBOLS

With the exception of suspensions, NCTs are generally not indicated in a figured bass. Suspensions are shown by the use of symbols identical or similar to the numbers we use to name suspension types. For example, a 7-6 suspension might appear as "7 6" or "3 6," while a 4-3 suspension might be "4 3" or "4 #." Change of bass suspensions can be recognized by such combinations as "7 3" or "9 6" appearing over a moving bass.

EMBELLISHING A SIMPLE TEXTURE

One way to compose in the tonal style is to begin with a simple texture that has an interesting soprano/bass counterpoint and then embellish it. Two common types of NCT embellishments are the neighbor and the passing tone. Another type of embellishment, although it is not an NCT, is arpeggiation. We have seen bass arpeggiations in connection with inverted triads, but arpeggiations can be used in any part to create motion or a more interesting line.

Adding neighbors, passing tones, and arpeggiations to the texture is not difficult, but you must be careful not to create objectionable parallels in the process. Example 11-16a illustrates a simple texture without parallels. Ex-

ample 11-16b shows the same music embellished, but each embellishment has created objectionable parallels. While such parallels may occasionally be found in tonal music, you should try to avoid them for now.

Example 11-16.



Adding suspensions to the texture does not usually create parallels, but it is still somewhat tricky at first. You may find the following suggestions helpful.

- Find a step down in the bass to a strong beat. Is the harmonic interval between the bass and some upper voice on the strong beat a 3rd (or 10th)? If so, the 2-3 suspension will work.
- 2. Find in one of the upper voices a step down to a strong beat. Is the harmonic interval on the strong beat between that part and the bass a 3rd, 6th, or 8ve? If so, the 4-3, 7-6, or 9-8 suspension, respectively, will work. Exception: do not use the 4-3 or 7-6 if the resolution of the suspension would already be present in another voice. The aural result is very disappointing.

Below is a simple two-voice example (Ex. 11-17). Possible locations for suspensions are shown with an x. The second part of Example 11-17 is an embellished version containing all of the embellishments discussed so far.

Example 11-17.





SUMMARY

Non-chord tones are classified chiefly by contour (p. 156), but terms relating to duration and accent are sometimes also applied (p. 157). The passing tone (pp. 158-59) is approached by step and left by step in the same direction. The neighboring tone (p. 160) is approached by step and left by step in the opposite direction. The suspension (pp. 160-65) is an accented NCT prepared by the same tone and resolved by step downward. The common types are the 7-6, 4-9, 9-8, and 2-3 suspensions. Any but the 2-3 may occur with a change of bass. Only in the 9-8 is the resolution tone present in the texture at the point of suspension. The retardation (pp. 163-64) is similar to the suspension, but it has an upward resolution.

SELF-TEST 11-1

A. Analysis.

 Go back to Example 7-7 (p. 98) which shows NCTs in parentheses, and identify the type of each NCT in the blanks below. Always show the interval classification (7-6, and so on) when analyzing suspensions.

Measure	Treble	Bass
1		
2		100
3		
5		
6		
7		

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2. Do the same with Example 7-10 (p. 100).

soprano:	
tenor:	
bass:	

3. Analyze chords and NCTs in this excerpt. Then make a reduction similar to those seen in this text by (1) removing all NCTs, (2) using longer note values or ties for repeated notes, and (3) transposing parts by a P8 when necessary to make the lines smoother. Study the simplified texture. Do any voice-leading problems appear to have been covered up by the embellishments?

Bach, "Schmücke dich, o liebe Seele"



B. After reviewing the discussion of embellishment (pp. 165-67), decide what one suspension would be best in each excerpt below. Then renotate with the suspension and at least one other embellishment. Remember to put parentheses around NCTs and to label NCTs and arpeggiations.





EXERCISE 11-1. See Workbook.

NON-CHORD TONES 2

APPOGGIATURAS

All of the NCTs discussed so far are approached and left by step or by common tone. In most tonal music the majority of NCTs will be of the types already discussed. NCTs involving leaps (appoggiaturas, escape tones, neighbor groups, and some anticipations) are not rare, however, and they tend to be the most obvious to the listener.

As a very general rule, appoggiaturas are accented, approached by ascending leap, and left by descending step. The Tchaikovsky theme in Example 12-1 (notice the transposition) contains two appoggiaturas that fit this description. The first, a¹, might also be heard as a suspension from the previous measure.

Example 12-1. Tchaikovsky, Symphony No. 5, II



All appoggiaturas are approached by leap and left by step, but the sequence is not always ascending leap followed by descending step. In fact, Example 11-13 (p. 163) has already provided us with an example of an unaccented appoggiatura approached from above (the e²). Notice that it is also chromatic. Probably the only other generalization that could be made concerning the appoggiatura is that the appoggiatura, especially the supermetrical variety, is more typical of the nineteenth century than the eighteenth. As an illustration, consider Example 12-2. Four of the five NCTs in the phrase (not counting the a's in m. 5, left hand, because they double the melody) are appoggiaturas, and two of the four are supermetrical. It is largely this aspect—though in combination with others (slow harmonic rhythm, disjunct melody, homophonic texture, wide range, and so on)—that gives this phrase its romantic flavor.

Example 12-2. Chopin, Nocturne Op. 27, No. 2



The reduction of Example 12-2 shows that when we move from the surface of the piece to the background voice leading, our interpretation of the supermetrical approgrammer changes considerably.

ESCAPE TONES

The contour of the escape tone is the reverse of that of the appoggiatura, because the escape tone is approached by step and left by leap. Escape tones are usually submetrical, unaccented, and diatonic. They are often used in sequence to ornament a scalar line, as in mm. 59-60 of Example 11-7 (p. 159). Notice in Example 11-7 that while escape tone figures ornament the line d^2 - c^2 - b^1 , actual escape tones occur only two times.

The escape tone is also frequently used at cadences to ornament the scale degree progression 2-1. An instance of this can be seen in Example 12-3.

Example 12-3. Haydn, Sonata No. 35, I



All of the escape tones cited in this section have been submetrical, unaccented, and diatonic; these are all usually characteristic of the escape tone in tonal music.

THE NEIGHBOR GROUP

A common method of embellishing a single tone involves a combination of two NCTs in succession, the first being an escape tone, the second an appoggiatura. The figure is referred to as a neighbor group. As Example 12-4 illustrates, the neighbor group bears a resemblance to a neighboring tone figure.

Example 12-4.



ANTICIPATIONS

An anticipation, as the name implies, anticipates a chord that has not yet been reached. This NCT moves, by step or by leap, to some pitch that is contained in the anticipated chord but is not present in the chord that precedes it. For example, if the triad F/A/C were to proceed to the triad Bb/D/F, you could use either the note Bb or the note D to anticipate the Bb/D/F chord while the F/A/C chord is still sounding. The note F could not be used as an NCT, because it is common to both chords. Of the two notes Bb and D, the Bb is probably the better choice. In Example 12-5a the anticipated bb¹ forms a satisfying dissonance with the other pitches and is clearly an NCT, but in Example 12-5b the d² forms no true dissonance with any other pitch.

Example 12-5.



An anticipation very much like the one in Example 12-5a appears in Example 12-6.

Example 12-6. Bach, Well-Tempered Clavier, Book II, Fugue 22



Most anticipations are approached by step, but the approach by leap is not rare. In Example 12-7 there are three anticipation figures, each approached by leap and left by common tone, but only one figure, that in the bass, is an NCT.

Example 12-7. Schumann, "Little Morning Wanderer," Op. 68, No. 17



The least commonly encountered variety of NCT is the anticipation approached and *left* by leap. This is sometimes referred to as a *free anticipation*. Below is an example from Mozart, in which the bass anticipates the tonic triad before the dominant chord has resolved, allowing the bass in mm. 7-9 to imitate the soprano in mm. 5-7.

Example 12-8. Mozart, Sonata K. 332, I



THE PEDAL POINT

The pedal point has been saved for last in the discussion of NCTs because it is really in a class by itself. The pedal point is a compositional device that begins as a chord tone, then becomes a NCT as the harmonies around it change, and finally ends up as a chord tone when the harmony is once more in agreement with it. The other NCTs are clearly decorative and are always dependent upon the harmony for their meaning. But the pedal point often has such tonal strength that the harmonies seem to be embellishing the pedal point, rather than the other way around. This sounds more complicated than it is. Look at Example 12-9, which shows the ending of a fugue by Bach.

Example 12-9. Bach, "Allein Gott in der Höh' sei Ehr"



In one sense, the piece ends on beat 1 of m. 88 with the IAC. What follows that cadence is a short codetta, with the tonic note sustained in the bass beneath a IV-vii^o-I progression in the upper voices. The chords above the tonic pedal are analyzed, but in a very real sense the pedal overpowers the

upper parts and represents the tonic harmony. Incidentally, the relatively weak inverted IAC is used to end this work because the bass line is presenting the melody on which the piece is based.

You may have noticed that inversions above the pedal point are not indicated in Example 12-9. This is generally a good practice to follow in the analysis of such passages. The aural effect of inversion is altered by the pedal, and there are no conventional symbols to represent this alteration.

The term *pedal point* comes from the frequent use of the device in organ compositions. At any point in the composition, but most frequently at the end of the work, the organist will be called upon to sustain a single pitch with a pedal while continuing to play moving lines with the manuals (keyboards). Most frequently the sustained pitch is the tonic or the dominant, and the passage often includes the triad whose root is a P4 above the pedal point (hence the term *pedal six-four chord*). Therefore if the tonic pitch is the pedal, the IV chord will often be used above it (as in Ex. 12-9), and if the dominant pitch is the pedal, the I chord will often be used above it.

Pedal points occasionally occur in parts other than the bass, in which case they are referred to as *inverted pedal points*. Another possibility is for the pedal point to contain more than one pitch class (double pedal point, and so on), as in Example 12-10. While most pedal points are sustained, rearticulated pedal points, as in Example 12-10, are not uncommon.

Example 12-10. Schumann, "Reaper's Song," Op. 68, No. 18



SUMMARY OF NON-CHORD TONES

NCTs are most commonly classified by their contours. Stepwise NCTs (p, n, s, r, some anticipations) are somewhat more common than NCTs involving both steps and leaps (app, e, n.gr, some anticipations). NCTs involving

only leaps (some anticipations) are quite rare. The pedal point has unique characteristics and is common throughout the tonal era. NCTs should also be considered in terms of their duration, relative metric accent, direction, and possible chromatic alteration. All have influence upon the musical effect of the NCT.

Finally, the actual label that an analyst assigns to a tone may change as he or she reduces the passage. Such possibilities were mentioned in connection with Examples 12-1 and 12-2. For variety, we will do a reverse reduction of a similar passage. Example 12-11 shows two versions of a portion of a melody in Eb, the first melody being diatonic, the second incorporating chromatic and diatonic passing tones.

Example 12-11.



If we embellish each tone of Example 12-11b, we create the melody found in Example 12-12.

Example 12-12. Schubert, Impromptu Op. 90, No. 2



The labeling of the NCTs in Example 12-12 is problematical. For instance, the first ct1 in m. 3 is, on the surface, a neighboring tone (eb1-et1-d#1). But Example 12-11b showed that the et is not a neighbor but a passing tone (eb1-e1-f1). Probably the best solution is to label tones according to the level on which you are analyzing, remembering that other interpretations may be necessary at different levels.

SELF-TEST 12-1

m. 4

A. Analysis.

 Go back to Self-Test 8-1, Part E (p. 121), which shows NCTs in parentheses, and identify the type of each NCT in the blanks below. Always show the interval classification (7-6, and so on) when you analyze suspensions.

m. 1 ___ __ __

2. Analyze the NCTs in Example 10-7 (p. 147).

m. 24 ____ __ m. 25 ___ __ m. 26

3. Analyze the NCTs in Example 10-8 (p. 147).

m. 72 ____ m. 76 ____ m. 74 ___ m. 77 (melody) ____ m. 75 ___ (alto) ___

4. Label the chords and NCTs in this excerpt. Then make a simplified version similar to the reductions found in the text. Comment upon the simplified version. Analyze two chords in m. 11, beat 3.

Bach, "Ermuntre dich, mein schwacher Geist"



5. Follow the same instructions for this excerpt as for exercise 4. Assume that chords sustain through rests (in m. 6, for instance).

Mozart, Sonata K. 333, I

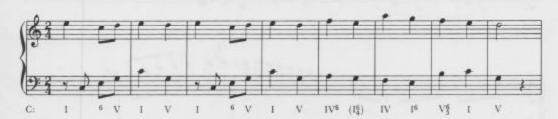


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B. The example below is for three-part chorus. Analyze the chords with roman numerals. Then add the specified NCTs at the points indicated. Show the interval classification of each suspension.



C. The excerpt below is a reduction of Mozart's Sonata K. 330, III, mm. 1-8. Use it as a framework for elaboration, employing arpeggiations and NCTs as you see fit. It is also possible to thicken the texture occasionally, if you wish.





EXERCISE 12-1. See Workbook.



ENGLISH GRAMMAR AND TONAL HARMONY

Reviewing a little English grammar will help us make a point about tonal harmony. Consider this sentence:

The chef carefully prepared a very memorable dinner.

Much of the meaning of the sentence is conveyed by its most essential parts, the subject and the predicate, which would appear in unmodified form as follows:

chef prepared dinner

While this telegraphic style is not elegant, it does get the idea of the sentence across, just as would a I-V-I progression. The other words in the sentence flesh it out and help describe the subject and predicate. The whole sentence can be diagramed to show the function of each word:

The grammar of tonal harmony has some similarities to spoken language, but it is not quite so well understood. While we might draw an analogy between chord functions and parts of speech, no one has devised a system of diagraming harmony as precisely as English sentences.

LEVELS OF HARMONY

Play this phrase (Ex. 13-1) slowly.

Example 13-1. Haydn, Sonata No. 33, II



The basic tonal motion of this phrase, the skeletal subject and predicate, is made up of the i-V progression formed by the chords that begin and end the phrase. But how do the other chords function? How do we evaluate their relative importance? The roman numerals give us a hint, but more analysis is required. One way to approach such an analysis is to try to hear the chords as originating at different levels: some levels are rather fundamental to the structure, others are more ornamental.

Play the first two measures again. One way to hear this fragment is as an arpeggiation from i to i⁶ that is filled in by the vii^o (or vii^o-vii^o). We might diagram these relationships on different levels as follows:

$$i - - - i$$

 $i - - i$
 $i - vii^{\circ} = i^{\circ}$

The second part of the phrase is more involved. The V chord predominates, but the iv is an important dominant preparation. The root position i serves not as the goal of the phrase but as part of the prolongation of the V chord, Least important of all is the V⁶, which leads to (and depends upon) the i chord. These relationships might be summarized this way:

When we put the two halves of the phrase together, the diagram should show i and V as the most significant chords, with the iv coming in at the next level. The function of every other chord in the phrase must also be made clear.

Are there other ways to hear this phrase? Certainly, But we have gone a step beyond mere chord labeling in showing how a listener or performer might interpret this passage.

While Example 13-1 is incomplete in the sense that it ends with a HC, Example 13-2 contains a parallel period with complete harmonic motion away from I and back again.

Example 13-2. Haydn, Sonata No. 35, III



This excerpt can be seen as an elaboration of the progression presented in Example 13-3.

Example 13-3.



The other chords in Example 13-2 include a dominant preparation (IV), arpeggiations (I^6), and chords that fill in the arpeggiations (V_2^4 and V_3^6). The chord functions might be diagramed as follows:

This kind of analysis is much more subjective than sentence diagraming is, yet it is important that the analyst consider the true function of each chord, even if several interpretations are possible. In a levels analysis the highest level will usually include only the I chord that occurs near the beginning of the phrase and the V or V-I that ends it. The next level will often include the ii or IV preceding the last V. Other chords that sometimes seem to be more significant than those surrounding them include these:

Arpeggiations of important chords Root position I and V chords

Goals of stepwise bass lines

Tonicized chords (to be discussed in Chapters 18-19)

Chords of longer duration

SOME METHODS OF HARMONIC EMBELLISHMENT

Various methods are used to expand upon the simple progression that serves as the background of a passage. Some of them have been seen in Examples 13-1 and 13-2. The simplest of all is octave displacement (see m. 6 of Ex. 13-2, soprano and bass). More interesting is arpeggiation (mm. 1-2 of Ex. 13-1), which can itself be embellished. Most often used to embellish arpeggiations are passing chords (mm. 1-2 of Ex. 13-1), although approgratura chords (m. 1 of Ex. 13-2) are also used. Another method is the neighbor chord, two of which are illustrated in Example 13-4.

Example 13-4.



Strong dominant preparation chords (usually ii or IV) are in a class by themselves. They often occur at metrically stressed points, and they are frequently embellished. In many cases you may feel they rank with or just below the fundamental I and V chords in significance. The importance of these chords is reflected in their early appearance on the levels diagrams we have presented so far in this chapter.

EXAMPLES FROM A CHORALE

The chorale harmonization is a good source for the study of levels of harmony because it presents a large number of chords in a short space of time. Since most chorales modulate (change key) or contain tonicizations (see Chapters 18-19), we will have to restrict ourselves in this chapter, for the most part, to excerpts. The remainder of the examples in this chapter are drawn from Bach's harmonization of "Nun ruhen alle Wälder."

Example 13-5 shows the first phrase of the chorale. This phrase is obviously "about" the I chord, which appears in root position three times and occupies four of the eight beats in the example.

Example 13-5. Bach, "Nun ruhen alle Wälder"



There is no root position V, a weaker V_8^6 being used at the cadence. It can be heard as a neighbor chord to the I (Ex. 13-6).

Example 13-6.



The preparation for the V_5^6 is provided by the IV^{M}_{ξ} that precedes it. So far, our levels might be shown as

1	-	-	7	-	-	-	-	-	-	=	-	-
1	-	-	=	-	-	-	-	7	-	V_5^6	-	I
I	-	-	-	-	-	-	- 1	VM	6 -	V_5^6	-	I

The vii^{o6} that appears early in the phrase is a weak form of dominant harmony. Like the V6, it can be heard as a neighbor chord (Ex. 13-7).

Example 13-7.



The vii⁰⁶ is preceded by its own dominant preparation, a root position IV, which gives us this reading of the phrase:

I	-	_	-	-	-	-	-	-	-	-	-	_
1	-	-	-	-	-	-	-	-	-	V_5^6	-	I
1	-	-	-	-	-	-	-	IV ^{M6} 5	-	V_5^6	-	1
I	-	-	-	vii ⁰⁶	-	I	-	IV ^M 6	-	V ₅	-	1
1	-	IV	-	vii ⁰⁶	-	I	-	IVM6	_	V§	-	I

The third phrase of the chorale (Ex. 13-8) is essentially a I-V progression.

Example 13-8. Bach, "Nun ruhen alle Wälder"



We choose the root position I as the "original" version, with the arpeggiations embellishing it, as in Example 13-9.

Example 13-9.



Since this phrase has no dominant preparation, the only chords left to account for are the relatively weak V_2^4 and vii^{96} chords that embellish the tonic harmony:

The last phrase of the chorale (Ex. 13-10) is an embellished I-V7-I progression.

Example 13-10. Bach, "Nun ruhen alle Wälder"



The V7 is prepared by a IVM7 and by a weaker IV6, as diagramed below.

$$I - - - - V^7 - I$$

 $I - - IV^{M7} - V^7 - I$
 $I - IV^6 - IV^{M7} - V^7 - I$

The other three chords serve as an anacrusis (upbeat) to the first I chord and are added one at a time to the levels analysis:

CONCLUSION

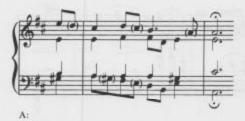
The concepts presented in this chapter are by no means original, but this kind of analysis of harmonic levels is not widely used. For this reason it will not be pursued systematically throughout the text. Instead, the idea of harmonic layers is introduced here to encourage the reader to understand that, although each chord may be labeled with its own roman numeral, all chords are not equally important. In fact, not all chords with the same label (all V's, all I's), have identical uses. Some serve as starting points, some as goals, others as connectors, and so on. These fascinating and complicated relationships are what the grammar of tonal harmony is all about.

SELF-TEST 13-1

Analysis.

1. Label the chords and do a levels analysis. What kind of NCT is the a1 in the soprano?

Bach, "Ich freue mich in dir"



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2. This exercise and the next one are two different harmonizations by Handel of the same melody. Label the chords and do a levels analysis.

Handel, "Wenn mein Stündlein vorhanden est"



3. Label the chords and do a levels analysis. What progression in this excerpt is relatively unusual?

Handel, "Wenn mein Stündlein vorhanden est"



4. Label the chords and do a levels analysis, What is the form of this excerpt? What kind of NCT is the c² in m. 8?

Schumann, "Poor Orphan Child," Op. 68, No. 6



EXERCISE 13-1. See Workbook.

DIATONIC SEVENTH CHORDS



THE V' IN ROOT POSITION

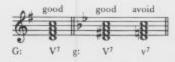
INTRODUCTION

Diatonic seventh chords were introduced quite early in this text, in Chapter 5. Subsequent examples and exercises have included the analysis of many seventh chords, but we have not dealt with the details of how composers have used seventh chords in tonal music. The use of seventh chords is the subject of the next several chapters.

Before reading further, review the material on seventh chords on pages 60-62. In those sections you learned, among other things, that the five most common seventh-chord qualities are the major seventh, dominant seventh, minor seventh, half-diminished seventh, and diminished seventh chords. Of these types, the dominant seventh is by far the most frequently encountered. It is generally built on $\hat{5}$, with the result that the terms dominant seventh and V^7 are used more or less interchangeably.

Dominant seventh chords by definition are always major-minor sevenths—that is, when spelled in root position, they contain a major triad plus the pitch a m7 above the root. In major keys a seventh chord built on $\hat{5}$ will be automatically a major-minor seventh chord. But in minor keys it is necessary to raise $\hat{7}$ in order to obtain the major-minor seventh quality. The seventh chord built on $\hat{5}$ without the raised $\hat{7}$ (v^7 instead of V^7) is not as common. It serves only as a passing chord, not as a true dominant, because it lacks the tonic-defining leading tone essential for a chord with a dominant function.

Example 14-1.



GENERAL VOICE-LEADING CONSIDERATIONS

The essential concept in the handling of any seventh chord involves the treatment of the seventh of the chord: the seventh almost always resolves down by step. We are naturally suspicious of generalizations, as we should be, but the downward resolution of the seventh as a general principle is extremely important. The seventh originated in music as a downward-resolving suspension or descending passing tone, and the downward resolution came to be the only one acceptable to the musical ear. To compare a seventh resolving down with one resolving up, listen to Example 14-2. The difference may or may not seem startling to you, but tonal music contains very few instances of the second resolution.

Example 14-2.



When you are working with the V⁷, you must also consider the leading tone: when it is in an outer part, the leading tone almost always resolves up by step. To convince yourself of the reason for this, play Example 14-3, and notice the disappointing effect of the cadence.

Example 14-3.



When you apply these two principles, remember not to confuse the seventh of the chord with the seventh scale degree. We will summarize what we have presented so far in this chapter:

- 1. The V7 chord is a major-minor seventh chord.
- 2. The seventh of the chord (4) resolves down to 3.
- The third of the chord (7) resolves up to 1, especially when it is in an outer part.

THE V7 IN TWO PARTS

Incomplete V⁷ chords, like incomplete triads, are usable sonorities. The ear recognizes the function of the sound and "assumes" the missing chord members. However, the root position V⁷ is not often used in two parts, because the dissonance of the seventh is particularly stark in a genuine two-part texture. When the seventh is found, it is usually touched upon only briefly, as in Example 14-4. In any case, the resolution will be as in the example: root down a P5 (or up a P4) and seventh down by step to 3.

Example 14-4. Bach, Invention No. 10



THE V7 IN THREE PARTS

The V⁷ in a three-part texture will have to appear with one of the chord tones missing, unless one part articulates two pitches. Obviously, neither root nor seventh can be omitted without losing the flavor of the seventh chord. Of the two remaining members, the fifth is more commonly omitted, but examples with the third omitted are not rare.

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Example 14-5.



Example 14-6 illustrates the V⁷ with omitted fifth.

Example 14-6. Bach, Sinfonia No. 9



A V7 with the third omitted can be seen in Example 14-7.

Example 14-7. Mozart, Sonata K. 570, III



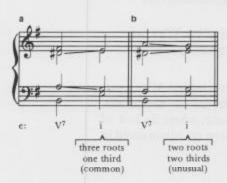
THE V7 IN FOUR PARTS

The resolution of the dominant seventh in root position to the tonic in root position is more difficult than that of any other combination. To master this technique, however, you need only to remember the principles we discussed earlier in this chapter:

- 1. The seventh must resolve down to 3.
- 2. The leading tone, when in the top part, must resolve up to 1.

Another way of looking at these principles is in terms of the resolution of the tritone: the +4 tends to resolve outward to a 6th (Ex. 14-8a), the °5 inward to a third (Ex. 14-8b). If we follow these principles, we find that the tonic triad is incomplete—it has no fifth.

Example 14-8.



The resolution of V⁷ to an incomplete triad is not an "error" to be avoided and is, in fact, a very common occurrence, especially at final cadences. In Example 14-9 the leading tone, even though it is not in the top voice, resolves up by step, resulting in an incomplete tonic triad.

Example 14-9. Schubert, Quartet, Death and the Maiden, Op. post., I



If you want to resolve the root position V⁷ in four parts to a complete tonic triad, either of these methods will work:

- Use an incomplete V⁷, omitting the fifth (or, less commonly, the third) and doubling the root.
- Use a complete V⁷, but put the leading tone (third of the V⁷) in an inner part, and "frustrate" its natural resolution by taking it down a M3 to the fifth of the tonic triad.

The first solution works because, as we have seen, the incomplete V⁷ is a perfectly usable sonority. The second method, which is the more common, succeeds by tucking away the leading tone in an inner voice, where its lack of resolution is not so apparent to the listener. Both options are summarized in Example 14-10.

Example 14-10.



Illustrations of these two procedures from the literature are seen in the next two examples. In the first (Ex. 14-11) an incomplete V^7 (fifth omitted) is used,

Example 14-11. Bach, "Nun ruhen alle Wälder"



In the second (Ex. 14-12) Beethoven uses a complete V⁷ but frustrates the leading tone,

Example 14-12. Beethoven, Quartet Op. 18, No. 1, IV (piano score)



200 I THE V7 IN ROOT POSITION

You may have discovered by now that there is a way to resolve a complete V⁷ in four parts to a complete tonic triad while still resolving both the leading tone and the seventh of the chord: if the fifth of the V⁷ leaps to the fifth of the tonic triad, the complete tonic triad is obtained, but at the expense of parallel 5ths. This resolution is illustrated in Example 14-13.

Example 14-13.



In instrumental music this solution is occasionally found when the 5ths are taken by contrary motion, as in Example 14-14. Notice how the rests in the lower parts and the continued activity in the first violin distract the listener's attention from the 5ths.

Example 14-14. Haydn, Quartet, Op. 76, No. 1, III (piano score)



THE V7 IN FIVE PARTS

Smooth voice leading in the resolution of the root position V^7 is easy to achieve in a five-part texture. The doubled tone is usually the root of the V^7 , as in Example 14-15.

Example 14-15. Bach, Well-Tempered Clavier, Book I, Prelude 1



THE V7-VI PROGRESSION

The V^7 in root position often moves deceptively to the submediant triad. When the leading tone is present in the V^7 (which it generally is), it usually resolves up to $\hat{1}$, even when it is in an inner voice. In four or more parts this resolution will result in a doubled third in the vi (or VI) chord. Some sample V^7 -VI progressions are given in Example 14-16. The voice leading would be the same in major.

Example 14-16.



CHECKPOINT

- In the resolution of any seventh chord, the seventh of the chord almost always moves (up/down) by (step/leap).
- 2. In the resolution of a V⁷ chord, the third of the chord (7) usually moves (up/down) by (step/leap). This principle is sometimes not followed when the third of the chord is in an (inner/outer) part, in which case it may leap down to 8.
- 3. If a member of the V7 is to be omitted, it is usually the (third/fifth).
- 4. If a member of the V7 is to be doubled, it is usually the _____.
- If the principles listed in questions 1 and 2 are followed in a four-part texture, the V⁷-I progression will lead to (a complete/an incomplete) I chord.
- Describe two good methods for attaining a complete I chord in a V⁷-I progression in four parts.

SELF-TEST 14-1

A. The note given in each case is the root, third, fifth, or seventh of a V⁷ chord. Notate the chord in root position and name the major key in which it would be the V⁷.

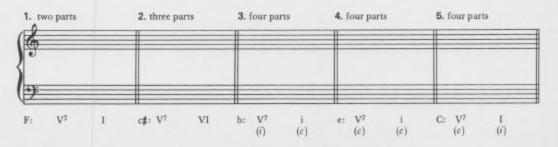


B. Go back to Self-Test 11-1, A. 3. Study carefully the V⁷ chords in mm. 1, 2, and 5, and comment on the voice leading. (Note: You may have analyzed the ab in m. 1 as a passing tone, but it could also be considered as a seventh.)

C. Resolve each chord below to a root position I, (Note: c means complete chord, i means incomplete chord.)



D. Notate the key signature and the V7 chord, then resolve it.



204 D THE V7 IN ROOT POSITION

E. Analyze the harmonies implied by these soprano/bass frameworks. Then make four-part versions with embellishments and at least one root position V^7 .



F. Analyze the chords specified by this figured bass. Then make two harmonizations, one for SAB chorus and one for SATB chorus.



EXERCISE 14-1. See Workbook.

THE INVERTED V7 CHORD

PART-WRITING PRINCIPLES

The inversions of the V⁷ chord are actually easier to handle than the root position V⁷. However, none of the inversions of the V⁷ should be considered to be possible substitutions for the root position V⁷ at an important cadence. The voice-leading principles followed by composers in the resolution of inverted dominant sevenths are the following:

- 1. The third (7) resolves up by step to 1.
- 2. The seventh (4) resolves down by step to 3.

The other members of the V^7 have greater freedom, but they generally move by step $(\hat{2} \cdot \hat{1})$ or are retained $(\hat{5} \cdot \hat{5})$.

You will recall that the symbols used to indicate inverted seventh chords are these:

- third in the bass
- fifth in the bass
- 4 (or 2) seventh in the bass

THE VE CHORD

Example 15-1 illustrates the basic voice leading in the resolution of the V§.

Example 15-1.



In practice, the V_5^g is often used in a relatively weak position in the phrase. The example below is typical, with the V_5^g harmonizing an f^2 that is essentially a harmonized passing tone in the melody. The root position V that ends the passage has a much stronger effect than the V_5^g .

Example 15-2. Mozart, Sonata K. 309, III



THE V4 CHORD

The V_3^4 is often used in a fashion similar to that of the passing V_4^6 : to harmonize $\hat{2}$ in a $\hat{1}$ - $\hat{2}$ - $\hat{3}$ or $\hat{3}$ - $\hat{2}$ - $\hat{1}$ bass line. The V_3^4 is seldom used in two- and three-part textures, the V_4^6 or vii⁰⁶ being used instead. Example 15-3 summarizes the treatment of the V_3^4 in four parts.

Example 15-3.



In the last progression above the seventh of the V_3^4 moves up to $\hat{5}$, one of the few situations in which composers frustrated the normal resolution of the seventh. The unequal fifths seen between the soprano and alto in Example 15-3 are acceptable. Example 15-4 gives an example from Haydn of the I- V_3^4 -I⁶ progression with an unresolved seventh (in the viola).

Example 15-4. Haydn, Quartet Op. 50, No. 6, II



In five-part textures the voice leading is similar to that in Example 15-3, except that the root is doubled in the V_3^4 .

THE V₂ CHORD

Because of the downward resolution of the seventh, the V⁴/₂ is almost always followed by a I⁶ (Ex. 15-5).

Example 15-5.



A less conventional but certainly effective treatment of the upper voices is seen in Example 15-6, in which the fifth of the V_2^4 leaps to the fifth of the I^6 chord.

Example 15-6. Beethoven, Sonata Op. 13, II



We have seen that the resolution of the seventh of the V⁷ (or of any seventh chord) is usually down by step. The way in which the seventh is approached should also be considered in any detailed analysis, because different approaches have different musical effects. One way of doing this is to classify the contour of the voice that has the chord seventh. If the chord tone preceding the seventh is:

- The same pitch class as the seventh, we use the term suspension figure (Ex. 15-7a)
- A step above the seventh, we use the term passing tone figure (Ex. 15-7b)
- A step below the seventh, we use the term neighbor tone figure (Ex. 15-7c)
- 4. None of the above, we use the term appoggiatura figure (Ex. 15-7d)

Example 15-7.



The contours defined above are put into context in Example 15-8.

Example 15-8.



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To be sure that you understand this section, look at the approach to the seventh in the examples listed below.

Example 14-4 (p. 195) Appoggiatura figure, with the appoggiatura filled in by a passing tone. Remember that we look at the contour from the previous chord tone.

Example 14-11 (p. 199) Suspension figure (true of both the ii⁷ and the V⁷).

Example 14-12 (p. 199) Neighbor tone figure.

Example 15-2 (p. 206) Passing tone figure. The line is g2-f2-e2.

Example 15-4 (p. 207) Ascending passing tone figure. The passing tone figure usually descends, the I-V⁴/₃-I⁶ progression being the only common exception.

SUMMARY

Learning to hear, spell, recognize, notate, and resolve the V⁷ chord is essential in the study of tonal music. You should review the points outlined below and make sure that you understand them completely before proceeding to the exercises.

- The seventh of the V⁷ resolves down by step, except in the V⁴₃-I⁶ progression, where it may move up by step.
- The leading tone resolves up by step. When it is in an inner part, it may leap down a 3rd, but this is uncommon in the inverted V⁷.
- 3. Common resolutions of the dominant seventh chord are:

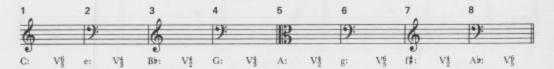
V7-I (or vi) V6-I V4-I (or I6) V4-I6

4. The seventh of the V7 may be approached by:

Common tone, in a suspension figure Step, in neighbor and passing tone figures Leap, in an appoggiatura figure

SELF-TEST 15-1

A. Notate the specified chords. Use accidentals instead of key signatures.



- B. Comment on the resolution of the leading tone and both the approach to and the resolution of the seventh in the examples referred to below.
 - 1. Self-Test 5-2, C. 1 (V2).
 - 2. Self-Test 5-2, C. 2 (V3).
 - 3. Example 7-13, p. 102 (V2).
- C. Resolve each chord to a tonic triad. Analyze both chords.





D. Supply the key signature. Then notate and resolve the specified chord. Finally, begin the exercise with a chord that will allow good voice leading and provide the indicated approach to the seventh. Notate as quarter notes. Label all unlabeled chords.



E. Review. Identify the following keys. If the chord occurs diatonically in both major and minor, name both keys.



EXERCISE 15-1. See Workbook.

THE II' AND VII' CHORDS

INTRODUCTION

Any diatonic triad may appear with a seventh added, but the various diatonic seventh chords do not occur with equal frequency in tonal music. In fact, the vast majority of seventh chords used are dominant sevenths, appearing either as the V⁷ or as a secondary V⁷ (to be discussed in Chapter 18). In the major mode, by far the most common seventh chord other than the V⁷ is the ii⁷. A ranking by frequency of the seventh chords in major would be approximately that shown below.

Because of the larger number of possible seventh chords in the minor (see p. 61) a corresponding diagram for minor would be difficult to produce. The leading-tone seventh is more frequently found in minor than in major, but the supertonic seventh is still the more common of the two in minor. At any rate, a diagram showing the order of frequency of seventh chords in minor would not differ radically from that shown for major. In this chapter and the next each of the diatonic seventh chords is illustrated and discussed briefly. This chapter covers only the supertonic and leading-tone seventh chords, the remainder being discussed in Chapter 17.

You will not find the voice-leading principles to be difficult. Actually, Chapter 14 presented the most formidable part-writing problems to be found in tonal harmony. Since the principles are not difficult, there are not separate sections dealing with the handling of each chord in two, three, four, and five voices. Instead, the following principles apply throughout:

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- 1. Incomplete chords must contain at least the root and the seventh.
- Doubled tones would generally not be the chord seventh or the leading tone of the scale.
- 3. The seventh of the chord almost always resolves down by step.
- The seventh of the chord may be approached in various ways (review p. 209). Especially smooth is the suspension figure.

THE II7 CHORD

By far the most common of nondominant diatonic seventh chords, supertonic sevenths may be found in most compositions of the tonal era. In major the ii⁷ is a minor seventh chord (Ex. 16-1a), while in minor keys the ii⁶7 is almost always used (Ex. 16-1b). Another possibility in minor is the ii⁷ chord created by a raised 6 (Ex. 16-1c); this chord is used rarely, since the linear tendencies of both the †6 and the chord seventh would usually resolve to a doubled leading tone in the V chord.

Example 16-1.



Like the supertonic triad, the supertonic seventh typically moves to V. The root position V may be delayed by the appearance of a cadential I₄⁶ chord, or the V may be represented by a vii^o6 (see Ex. 16-2 for typical resolutions).

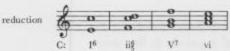
Example 16-2.



Examples of all the cases above, as well as of others, are not difficult to find, but the first inversion of the ii^7 is the most common bass position. A ii_8^6 -V⁷ progression in a three-part texture is illustrated in Example 16-3. Notice the suspension figure that prepares the seventh of the ii_8^6 .

Example 16-3. Mozart, Symphony No. 41, K. 551, IV





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A very familiar example of the ii2-V6 progression in a five-part texture occurs at the beginning of the Well-Tempered Clavier. Again the seventh is approached by means of a suspension figure.

Example 16-4. Bach, Well-Tempered Clavier, Book I, Prelude 1



A much less typical use of the supertonic seventh chord is as a substitute for a IV chord in a plagal cadence. In such cases, the ii⁷ is usually in first inversion, where its close resemblance to the IV is most obvious. In Example 16-5, which may be somewhat difficult to follow because of the clefs, Dvořák closes the phrase with a ii⁶§-i plagal cadence. The reduction makes the voice leading clearer and points out that most of the phrase is sequential.

Example 16-5. Dvořák, Symphony Op. 95 (From the New World), I



Perhaps a better explanation of the ii⁶/₅ in the example above is that it is a iv chord with an added sixth (the f#). This is especially appealing in that it accounts for the e, which is otherwise an unresolved seventh in the ii⁶/₇ chord.

THE VII7 CHORD IN MAJOR

The leading-tone seventh in major is a half-diminished seventh chord,* possessing, as does the viio triad, a dominant-like function. It normally resolves directly to the tonic, but it may first move to the V7 by simply taking 6 (the seventh of the chord) down one step. Typical resolutions to tonic in four parts are demonstrated in Example 16-6. The third inversion, which is quite rare, is not shown, nor is viion-left the volume of the chord of

^{*}The fully diminished vii⁰⁷ in major is discussed in Chapter 23.

Example 16-6.



The last progression in Example 16-6, the vii delta-I, is not common, but it does occur. When used at an important cadence, it results in an interesting combination of the characteristics of both plagal and authentic cadences. This is illustrated in Example 16-7, which is from the ending of a composition for two four-part choruses.

Example 16-7. Brahms, "Unsere Vater hofften auf dich," Op. 109, No. 1



As Example 16-6 showed, the root position vii^{\$\psi_7\$} must be handled carefully in order to avoid parallel 5ths. In the Haydn example below (Ex. 16-8), parallel 3rds in the violins move in contrary motion to the parallel 10ths beneath. This allows a very natural resolution to the tonic triad with doubled third.

Example 16-8. Haydn, Quartet Op. 74, No. 3, III



Otherwise, the vii^{\$\psi_7\$} poses no new problems. It should be remembered, however, that the vii^{\$\psi_7\$} is much less common than the other chords with dominant functions—V, V⁷, and vii^{o(6)}.

THE VII7 CHORD IN MINOR

In the minor mode, the leading-tone seventh (Ex. 16-9a) appears as a fully diminished seventh chord (vii^{o7}). The subtonic seventh chord (VII⁷) generally functions as a secondary dominant seventh (V⁷ of III), a usage that is discussed in Chapter 18 (Ex. 16-9b). The vii^{o7} is found more frequently and is discussed in the following paragraphs.

Example 16-9.



The vii⁹⁷, whether in root position or inverted, tends to resolve to tonic. As with the vii⁹⁷, the vii⁹⁷ may move first to the V⁷ simply by moving the seventh of the chord down one step. The resolution of vii⁹⁷ to i, however, requires more discussion,

The vii⁹⁷ contains two tritones. The tendency of the tritone is to resolve inward by step when spelled as a ⁹⁵, outward by step when spelled as a +4. If these tendencies are followed in four parts, as in Example 16-10, the tonic triad will have a doubled third.

Example 16-10.



Composers have not always cared to follow these tendencies, often taking 2 down to 1 instead of moving it up to 3 (compare Ex. 16-11a and b). In certain voicings, this can result in unequal 5ths (Ex. 16-11c).

Example 16-11.



The 5ths, though acceptable, are often disguised through the use of NCTs, as in Example 16-12.

Example 16-12. Bach, Passacaglia in C Minor



The members of the vii⁰⁷ usually move in the same ways when the chord is inverted as they do when it is in root position, and our discussion of the optionally doubled third still applies (for example, see the first chord in Ex. 16-12 above). The vii⁰ (Ex. 16-13a) usually is followed by i⁶, because resolution to the root position tonic creates unequal 5ths. The vii⁰ (Ex. 16-13b) moves smoothly to the i⁶; occasionally found is vii⁰ ; which is similar to the vii⁰ Teacher discussed in connection with Example 16-7. The vii⁰ (Ex. 16-13c) is generally followed by V⁷ or i⁶ V⁷.

Example 16-13.



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CHECKPOINT

- The most frequently used diatonic seventh chord is the V⁷. Which one ranks second in frequency?
- 2. What tones of a seventh chord should not be omitted?
- 3. The seventh of a diatonic seventh chord resolves (up/down) by (step/leap).
- 4. Which types of seventh chords are found on 2 and 7 in major and minor? Which forms in minor are the most common?
- 5. The ii⁷ tends to be followed by _____, the vii^{\$7} by _____.
- 6. Which chord discussed in this chapter contains two tritones?
- The natural tendency of the +4 is to resolve (inward/outward) by step, while the o5 resolves (inward/outward) by step.
- Try to recall the implications of the preceding question in connection with the vii⁰⁷ chord.

SELF-TEST 16-1

A. Notate the following chords. Use accidentals, not key signatures.



B. Analyze the following chords. Be sure your symbols indicate chord quality and inversion.



- C. Analyze the chords and NCTs in the following excerpts. Whenever you encounter a ii⁷ (ii⁶) or vii⁶ (vii⁶) chord, discuss the voice leading into and out of the chord.
 - Each numbered blank indicates where a chord is to be analyzed. In many cases it
 would be equally valid to analyze the "chords" as NCTs.

Bach, "Gib dich zufrieden und sei stille"



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Again, the chords are numbered. Also, the "real" bass notes of chords 1-3 are circled.
 Mozart, Piano Sonata K. 284, III, Var. 5



3. Trace the predominant rhythmic idea in this excerpt.

Schubert, Aufenthalt



4. The melody notes on beat 2 of each odd-numbered measure are NCTs. Try to make a reduction that would show the simple model of which this excerpt is an elaboration. What is the meaning of the asterisks in mm. 9 and 15?

Chopin, Mazurka Op. 33, No. 3



D. Notate, introduce, and resolve the specified chords. Each chord seventh is to be approached as a suspension, as a neighbor, or as a passing tone; label which one you have used. Include key signatures and roman numerals.





E. Analyze the chords called for by this figured bass, analyzing in D major throughout. Then add two upper treble-clef parts conforming to those chords. Note: This trio would actually be performed by four musicians: two violinists, someone playing the bass line (probably a cellist), and a keyboard player realizing the figured bass. (The numerals 3 and 5 call for root position triads.)

Corelli, Trio Sonata Op. 3, No. 2, II



EXERCISE 16-1. See Workbook.

OTHER DIATONIC SEVENTH CHORDS

THE IV7 CHORD

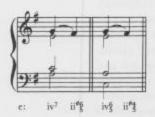
The diatonic subdominant seventh chord is found in the forms shown in Example 17-1.

Example 17-1.



Like the subdominant triad, the subdominant seventh moves to V (or vii^{o6}), often passing through some form of the ii chord on the way. The resolution to ii⁷ (possibly inverted) is especially easy to handle, because only the seventh needs to move. This is illustrated in Example 17-2.

Example 17-2.



When iv⁷ moves directly to V, parallel 5ths may result if the seventh of the chord is placed above the third (Ex. 17-3a). This can be corrected through the use of a cadential six-four (Ex. 17-3b) or by doubling the fifth of the V chord (Ex. 17-3c). The solutions illustrated in Examples 17-3d and 17-3e, while less commonly used, are also acceptable.

Example 17-3.



Otherwise, the voice leading to or from the root position or inverted subdominant seventh is smooth and offers no new problems. An interesting example is quoted on the next page. While the treatment of the IV^{M7} in Example 17-4 is conventional, the rest of the progression is not. Approximately half of the chord successions would have to be called exceptional or nonfunctional. Especially unusual are the chords setting the words "Gebete, darinnen," ending with the chord labeled bVII. This is a "borrowed" chord, the subject of Chapter 23. The reduction, which shows only the soprano and the bass, explains the bVII as coming about through the sequential treatment of five note motives in the outer voices. The notes belonging to each appearance of one of the motives are notated as half notes and are beamed to each other.

Example 17-4. Brahms, "Der englische Gruss," Op. 22, No. 1





The subdominant seventh in minor with a raised $\hat{6}$ (see Ex. 17-1) has the same sound as that of a dominant seventh chord, but it does not have a dominant function. Instead, it results from ascending motion toward the leading tone ($\uparrow \hat{6}$ - $\uparrow \hat{7}$ - $\hat{1}$), as in the Bach example below (Ex. 17-5).

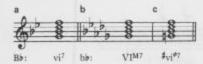
Example 17-5. Bach, "Gott hat das Evangelium"



THE VI7 CHORD

The submediant seventh is found in three forms (Ex. 17-6).

Example 17-6.



Like their parent triads, the vi⁷ and the VI^{M7} typically move toward V, usually passing through subdominant or supertonic chords, or both, on the way. The resolutions to IV and ii are not difficult, and some of the possibilities are illustrated in Example 17-7.

Example 17-7.



If a root position vi^7 or VI^{M7} moves to a root position V, parallel 5ths are apt to result, as in Example 17-8a. In major this problem can be avoided by moving to V^6 or V^6_5 , as in Example 17-8c.

Example 17-8.



Of course, in a freer texture, voice leading is a less critical problem. In Example 17-9 parallel 5ths are seen in the vi⁷-ii⁷ progression. Notice also the unresolved seventh in the last cadence.

Example 17-9. Chopin, Ballade Op. 38



In minor, when the root of the submediant seventh moves up by step to $\hat{7}$, the $\hat{6}$ must be raised in order to avoid the interval of a +2. The chord that results when $\hat{6}$ is raised is a half-diminished seventh: $vi^{\phi 7}$. The origin of this chord is illustrated in Example 17-10.

Example 17-10.



The $^{\sharp}$ vi $^{\dagger 7}$ usually serves as a passing chord between two chords of dominant function (V or vii°). It moves most smoothly to the otherwise unusual root position vii°, as in Example 17-11, but it can move to V_5^6 if $\hat{1}$ leaps to $\hat{5}$ (as in Ex. 17-10b).

Example 17-11. Bach, "Warum betrübst du dich, mein Herz"



THE I7 CHORD

The tonic seventh chord in its diatonic form is a M⁷ chord in a major key (Ex. 17-12a) and a m⁷ chord in a minor key (Ex. 17-12b). The minor-major seventh chord in minor (Ex. 17-12c), while possible, is quite rare in the tonal tradition, although it is used freely in jazz.

Example 17-12.



Adding a seventh to the tonic triad obviously deprives it of tonal stability. Rather than being a harmonic goal or resting place, the tonic seventh is an active chord that demands resolution. It tends to move to a IV, or sometimes to a ii or vi, any of which might also contain a seventh. The chord of resolution must be one that contains $\hat{6}$ so that the chord seventh ($\hat{7}$) can resolve down to it. Some possibilities are illustrated in Example 17-13.

Example 17-13



While the tonic seventh is by no means a frequently encountered sonority, it can be very effective when handled well. Two examples from Schumann's Album for the Young appear below, with the seventh approached as a passing tone in each case. The reduction of Example 17-15 shows that the chord sevenths resolve down by step, even in this fairly free texture (see the bracketed notes). In the roman numeral analysis "V\fantarrow

Example 17-14. Schumann, "Spring Song," Op. 68, No. 15



Example 17-15. Schumann, "Mignon," Op. 68, No. 35





THE III7 CHORD

The diatonic mediant seventh chord takes the forms illustrated in Example 17-16. The first two chords in Example 17-16 (the other is rarely used) occur most often in sequences of seventh chords.

Example 17-16.



A typical instance of such a sequence is seen in Example 17-17. The music shown is played by the string orchestra, while the soloists have a somewhat embellished version. Notice that in the sequence complete seventh chords alternate with incomplete seventh chords (with fifth omitted). This alternation is the customary method of part writing root position seventh chords in four parts in a circle of 5ths sequence. Note that the resulting smooth voice leading allows each chord seventh to be approached as a suspension. While the iii⁷ usually progresses to vi⁽⁷⁾, as here, it may also be followed by a IV chord.

Example 17-17. Corelli, Concerto Grosso Op. 6, No. 3, V



SUMMARY

Some seventeen different seventh chords have been discussed in this chapter and the preceding one. Rather than trying to memorize the typical resolutions of these chords, we suggest that you simply remember and apply these principles:

- The function of a triad is not changed by the addition of a seventh. Since, for example, iv tends to progress to ii^o or V, you may assume that iv⁷ has these same tendencies. Exception: the tonic becomes an active chord instead of a stable harmonic goal.
- 2. Smooth approach to the seventh of the chord is a feature of many, but not all, passages employing diatonic seventh chords.
- Chord sevenths almost always resolve down by step. It follows, therefore, that the chord of resolution must contain the note to which the seventh will resolve. The resolution is sometimes delayed, as in iv⁷. ig-V, or, in rare cases, simply not employed.
- In minor, the movement of the individual lines usually conforms to the melodic minor scale. Because of this, more seventh-chord types are possible in minor than in major.

SELF-TEST 17-1

A. Notate the following chords. Use accidentals, not key signatures.



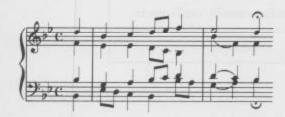
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B. Analyze the following chords. Be sure your symbols indicate chord quality and inversion.



- C. Analyze chords and NCTs in the excerpts below. Comment on the voice leading involving any of the chords discussed in this chapter.
 - 1. What spacing "rules" are broken in this excerpt? Why do you suppose this was done?

Bach, "Nun ruhen alle Wälder"



2. Analyze two chords on beat 3 of the first measure.

Bach, "Warum sollt' ich mich denn grämen"



3. A _____ progression occupies most of this excerpt. The seventh chords in this three-part texture each lack a _____ . If you were to add a fourth voice beginning on f¹, how would it proceed? (Do not label NCTs in this exercise.)

Mozart, Sonata K. 533, III



D. Notate, introduce, and resolve the specified chords. Each chord seventh is to be approached as a suspension, as a neighbor, or as a passing tone; label which one you have used. Include key signatures and roman numerals.





E. Add a top voice to create a three-part texture.



F. Analyze the chords specified by each figured bass, and make a harmonization for fourpart chorus.



EXERCISE 17-1. See Workbook.

CHROMATICISM 1



SECONDARY FUNCTIONS 1

CHROMATICISM AND ALTERED CHORDS

The term *chromaticism* refers to the use of pitches foreign to the key of the passage. The only chromaticism we have discussed so far involves chromatic non-chord tones. For instance, Example 18-1 contains several notes not found in the Bb major scale, but all of them are non-chord tones.

Example 18-1. Haydn, Quartet Op. 64, No. 3, 1



Some people use the term nonessential chromaticism to describe the use of chromatically altered tones as NCTs. Essential chromaticism refers to the use of tones from outside the scale as members of chords. Such chords are called altered chords.

SECONDARY FUNCTIONS

By far the most common sort of altered chord in tonal music is the secondary function. A chord whose function belongs more closely to a key other than the main key of the passage is called a secondary function. Listen to Example 18-2, paying special attention to the ending. Although the two-part texture means that incomplete chords will have to be used, it is clear that the f\$\psi^1\$ in m. 7 is not a NCT. In fact, the last two chords are D and G, and they sound like V-I in the key of G.

Example 18-2. Haydn, Symphony No. 94, II



If our ears were to lose track of the original tonic at this point, or if the music were to continue in the key of G, we would analyze this as a change of key. However, since we still hear the G chord as a V, and since the next phrase is a repeat of the first one, we label the G chord as V and call the D chord a V of V (the symbol is V/V). We say that the D chord has tonicized the G chord, has given it special emphasis, but that a change of tonic has not taken place.

Most secondary functions are either secondary dominants (V of and V^7 of) or secondary leading tone chords (vii^0 of, vii^{07} of, and vii^{07} of).

SECONDARY DOMINANT CHORDS

Since tonic triads are always major or minor, it makes sense that only major and minor triads can be tonicized by secondary dominants. This means that you would not expect to find V/iio in minor or V/viio in either major or minor. All other diatonic chords (other than I, of course) may be tonicized by secondary dominants. The chart that follows illustrates the possibilities in F major.



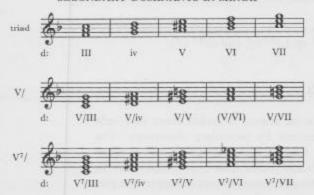
Only one of these chords, V/IV, is identical to a diatonic chord in F. Because V/IV sounds like I, composers most often use V⁷/IV instead of V/IV to make the secondary function clear.

The secondary dominants in d minor are illustrated in the chart below. Here three chords are identical to diatonic chords in d minor. The V/III

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(= VII) and the V^7/III (= VII⁷) are both usable, even though they are not altered chords, since VII and VII⁷ usually function as dominants of III anyway. The V/VI, however, would usually be analyzed as III instead of as a secondary dominant.

SECONDARY DOMINANTS IN MINOR



SPELLING SECONDARY DOMINANTS

There are three steps involved in spelling a secondary dominant:

- 1. Find the root of the chord that is to be tonicized.
- 2. Go up a P5.
- 3. Using that note as the root, spell a major triad (for V of) or a major-minor seventh chord (for V^7 of).

For example, to spell a V/vi in Eb, the steps are the following (Ex. 18-3):

- 1. The root of vi in Ep is C.
- 2. A P5 above C is G.
- 3. A major triad on G is G/B(t)/D.

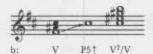
Example 18-3.



Or, to spell a V7/V in b minor (Ex. 18-4),

- 1. The root of V in b is F#.
- 2. A P5 above F# is C#.
- 3. A Mm7 on C# is C#/E#/G#/B.

Example 18-4,



RECOGNIZING SECONDARY DOMINANTS

If you encounter an altered chord in a passage, there is a good chance that it will be a secondary dominant. These steps will work in most cases:

- Is it a major triad or major-minor seventh chord? If not, it is not a secondary dominant,
- 2. Find the note a P5 below the root of the altered chord.
- Would the diatonic triad built on that note be a major or minor triad? If so, the altered chord is a secondary dominant.

SELF-TEST 18-1

A. Review how to spell secondary dominants (p. 244). Then notate these secondary dominants in the specified inversions. Include key signatures.



B. Label any chord that might be a secondary dominant according to the steps outlined on page 245. Label all others with an X.



EXERCISE 18-1. See Workbook.

SECONDARY DOMINANTS IN CONTEXT

Secondary dominants generally resolve just as primary dominants do. That is, a V§/V in C will resolve the same way a V§ would in the key of G (Ex. 18-5a). The only difference is that sometimes the chord that the secondary dominant resolves to contains a seventh. In that case, the leading tone slides down a half step to become the seventh of the chord of resolution (Ex. 18-5b). Secondary dominants may be approached in a variety of ways. The examples that follow will give you an idea of some of the possibilities.

Example 18-5.



The V^7/V is the most frequently encountered secondary dominant. In Example 18-6 the V is delayed by a cadential six-four. This is not an irregular resolution of the V^7/V , since, as we know, the I_2^6-V together stands for V.

Example 18-6. Schumann, Noveletten, Op. 21, No. 1



In our discussion of Example 18-5b above, we pointed out that the leading tone of the secondary dominant will move down by half step if the chord that follows contains a seventh. This is illustrated in Example 18-7. Notice also in this example the use of "V\(^6_6\rightarrow" in place of "V\(^6_6\rightarrow." The arrow is a useful abbreviation that may be used whenever the tonicized chord comes immediately after the secondary dominant.

Example 18-7. Chopin, Mazurka Op. 68, No. 1



248 D SECONDARY FUNCTIONS 1

The common deceptive progression V⁽⁷⁾-vi is often given added impetus by inserting a dominant of vi between the V and the vi, as in Example 18-8.

Example 18-8. Schumann, "Eintritt," Op. 82, No. 1



The V⁷/IV, which is an altered tonic chord, offers yet another way to resolve a V chord deceptively. This is seen in Example 18-9. Notice also the stepwise bass line.

Example 18-9. Tchaikovsky, Trio Op. 50, II



A much less smooth introduction to a V⁷/IV is seen in Example 18-10. Here we see the ending of a phrase that concludes with a deceptive cadence (m. 24). All parts then immediately leap to C $\$, which is $\$ 7, to state the three-note motive that began the piece. This example also illustrates the V/ii.

Example 18-10. Haydn, Quartet Op. 20, No. 4, I



Examples of dominants of iii in major are not frequently encountered, since the iii itself is the least often used diatonic triad. However, the III in minor, which represents the relative major key, is very often tonicized. Play through Example 18-11, and then compare it to the simple sequence below it. This circle of 5ths sequence is the background of many passages of tonal music.

Example 18-11. Bach, French Suite No. 1, Minuet II





SELF-TEST 18-2

A. Analysis.

Analyze with roman numerals. Find the sequence and enclose it in brackets. Although
the voice leading is conventional throughout most of this excerpt, parallel 5ths do
occur. Find them. Be sure to play this example so that you can appreciate the effect
of the last four measures.

Schumann, Papillons, Op. 2, No. 12



2. Label the chords and NCTs.

Schubert, Symphony in Bb, II



3. Analyze chords and NCTs. To what extent is this example sequential? If you play the first half of m. 1 as a chord, you will discover that there are seven different parts in the texture. To what extent are some of these voices doubling another voice at the octave? Except for this, are there any parallel 8ves to be found?





4. Analyze chords and NCTs. To what extent is this example sequential?

Mozart, Violin Sonata K. 481, II



Mendelssohn, Quartet Op. 44, No. 3, II







6. Analyze chords and NCTs, but ignore the grace notes for the purpose of your analysis. Study the four voices that accompany the melody. Do they follow conventional voice-leading principles? What about the melody? Does it contribute an independent fifth voice, or is it sometimes doubling an accompanying line?

Schumann, Arabesque, Op. 18



B. For each of the following problems, first analyze the given chord. Next, find a smooth way to lead into the chord. While there are many possibilities, it will often work to use a chord whose root is a P5 above the root of the secondary dominant. Experiment with other relationships also. Then resolve each chord properly, taking special care with the leading tone and the seventh resolutions. Analyze all chords.



C. Below each note list the secondary V and V^7 chords that could harmonize that note. You may find it helpful to refer to the charts on pp. 243-44.



256 D SECONDARY FUNCTIONS 1

D. Provide roman numerals to show how the first note could be harmonized as a secondary dominant. The second note should be harmonized by the tonicized chord.



E. Harmonize each chorale phrase for SATB chorus. Include one or more secondary dominants in each phrase and activate the texture with some NCTs. Note that the key of the phrase does not always agree with the key signature.



F. Analyze the harmonies specified by each figured bass, and make a setting for SATB chorus.



EXERCISE 18-2. See Workbook.

SECONDARY FUNCTIONS 2

SECONDARY LEADING-TONE CHORDS

The V⁽⁷⁾ and vii⁹⁽⁷⁾ chords have similar functions in tonal music (review pp. 100-101), the main difference being that V⁽⁷⁾, which contains a P5 above the root, sounds like a more substantial sonority. The same generalizations hold true for secondary functions, which means that any chord that can be tonicized by a V⁽⁷⁾ can also be tonicized by a vii⁹⁽⁷⁾.

One small complication arises when a leading-tone seventh chord (as opposed to a leading-tone triad) is used as a secondary function. Should the resulting chord be a vii⁶⁷/ or a vii⁶⁷/? Almost all examples follow these principles:

- 1. If the triad to be tonicized is minor, use vii⁰⁷/.
- If the triad to be tonicized is major, use either vii⁶⁷/ or vii⁶⁷/, although the fully diminished version appears to be used more often.

The tables below list all of the secondary leading-tone chords in major and minor. While all of these chords are theoretically possible, leading-tone chords of ii, IV, iv, V, and vi are more common than the others. One chord, the vii°/III in minor, is identical to a diatonic triad (ii°), and the vii^{\$\textit{97}\$}/III is identical to a diatonic seventh chord (ii^{\$\textit{97}\$}). The functions of these chords can be made clear only by the context. You may also notice that there is no vii^{\$\textit{97}\$}/V, even though the V chord is major. This is because the key that V represents is drawn from the natural minor, which means that the key of the dominant in minor is a minor key. For this reason, vii^{\$\textit{97}\$}/V is not used.



SPELLING SECONDARY LEADING-TONE CHORDS

The procedure for spelling secondary leading-tone chords is not difficult and can be summarized as follows.

260 D SECONDARY FUNCTIONS 2

- 1. Find the root of the chord that is to be tonicized.
- 2. Go down a m2.
- Using that note as the root, spell a diminished triad (for vii^o of), a diminished seventh chord (for vii^o of), or a half-diminished seventh chord (for vii^o of).

For example, to spell a viio7/vi in Eb:

- 1. The root of vi in Eb is C.
- 2. A m2 below C is B.
- 3. A of chord on B is B/D/F/Ab.

RECOGNIZING SECONDARY LEADING-TONE CHORDS

If you find an altered chord in a passage and it is not a V⁽⁷⁾/, there is a good chance it will be a secondary leading-tone chord. These steps will work in most cases:

- Is the chord a diminished triad or a diminished seventh or halfdiminished seventh chord? If not, it is not a secondary leading-tone chord.
- 2. Find the note a m2 above the root of the altered chord.
- Would a diatonic triad built on that note be a major or minor triad?If so, the altered chord is a secondary leading-tone chord.

SELF-TEST 19-1

A. Review how to spell secondary leading-tone chords (pp. 259-60). Then notate these secondary leading-tone chords in the specified inversion. Include key signatures.



B. Label any chord that would be a secondary leading-tone chord according to the steps outlined on page 260. Label all others with an X.



EXERCISE 19-1. See Workbook.

SECONDARY LEADING-TONE CHORDS IN CONTEXT

Secondary leading-tone chords resolve in the same way as do primary leading-tone chords—leading tone up, seventh down. Smooth voice leading is usually, but not always, a feature of the progressions. A few examples will give you the idea.

In Example 19-1, Haydn uses a vii $^{\phi7}$ /V after a IV chord in order to add impetus to the movement toward V.

Example 19-1. Haydn, Symphony No. 53, II



Later in the same work, he signals the beginning of a section based on the V chord by use of a dramatic vii° 5/V (Ex. 19-2). The prolonged dominant that was first reached in m. 23 does not resolve until m. 38. The horns sound a m7 lower than written.

Example 19-2. Haydn, Symphony No. 53, III



A vii \(^4_3\)/iv and a vii \(^0_2\) of V both appear in Example 19-3. There is a cadential six-four in m. 67, but there is not a real modulation to F\(^\st\$ here. You can prove this for yourself by playing through the example. You will almost certainly hear the last chord as V, not I.

Example 19-3. Schumann, "Die feindlichen Brüder," Op. 49, No. 2





We noted on page 248 that the V⁽⁷⁾-vi deceptive progression is often embellished by inserting a V⁽⁷⁾/vi between the V and the vi. Even more common is the V-vii⁹⁷/vi-vi progression. Example 19-4 illustrates yet another possibility. Here the cadential I⁶₄ in m. 2 is followed not by V but by the vii⁹⁷/vi. We still hear it as a deceptive progression, but the V chord is only implied.

Example 19-4. Schumann, "Herberge," Op. 82, No. 6



Example 19-5 is noteworthy in several respects. It can be heard as two phrases, the second one beginning in m. 177. But m. 177 interrupts the cadence of phrase 1 with a V⁷-V⁶/IV deceptive resolution. It's as if Mendelssohn had said to us, "Here comes the end of the Here comes the end of the phrase." Does this make two sentences or only an expanded single sentence? More pertinent to this chapter is the vii ⁶/₂/ii that appears within the phrase (m. 175, m. 181). It follows a V⁴/₂, which would normally resolve to a I⁶. Since the vii ⁶/₂/ii is an altered tonic seventh chord, it provides an interesting deceptive resolution of the V⁴/₂.

Example 19-5. Mendelssohn, Symphony No. 4, Op. 90, I



SEQUENCES INVOLVING SECONDARY FUNCTIONS

Sequential patterns often use secondary functions. One that is especially common is the circle of 5ths sequence, but with one or more secondary functions (V/ or viio/) substituting for one or more of the diatonic chords. Below is a short circle of 5ths sequence, with possible substitutions shown for the first three chords,

Diatonic circle of 5ths in C
$$e^{7}(iii^{7}) - a^{7}(vi^{7}) - d^{7}(ii^{7}) - G^{7}(V^{7}) - C(I)$$
 $V^{7}/\text{substitutes} \qquad E^{7}(V^{7}/\text{vi}) - A^{7}(V^{7}/\text{ii}) - D^{7}(V^{7}/\text{V})$
 $vii^{07}/\text{substitutes} \qquad g^{*07}(vii^{07}/\text{vi}) - c^{*07}(vii^{07}/\text{ii}) - f^{*07}(vii^{07}/\text{V})$

By choosing one chord from each of the first three columns in the chart above, we can make up some variations on the circle of 5ths progression:

When a series of major-minor seventh chords is used in a circle of 5ths sequence, certain voice-leading problems come up. For one thing, as you learned on pages 246-47, each leading tone will resolve down by chromatic half step to become the seventh of the next major-minor seventh chord. Also, as you may recall from page 234, if the chords are in root position in a four-part texture, incomplete seventh chords must alternate with complete seventh chords. These points are illustrated in Example 19-6.

Example 19-6.



The voice leading in Example 19-6 is the precise voice leading Mozart uses in Example 19-7. However, he goes a step "too far," to an Eb⁷ in m. 58, implying a resolution to Ab. A change of key from Bb to Ab would be quite unexpected here. For five measures Mozart prolongs the suspense, until the Eb in the bass is finally bent up to Et, creating a vii⁰⁷/V in Bb. This leads back to a PAC in Bb. Notice also the Ab chords (pedal six-fours) that occur in mm. 58-61, adding to the listener's anticipation of Ab as a goal. In studying this example, remember that the basses on the bottom staff sound an octave lower than written.

Example 19-7. Mozart, Symphony No. 40, K. 550, I





DECEPTIVE RESOLUTIONS OF SECONDARY FUNCTIONS

While you will find that most secondary V⁽⁷⁾ and vii^{o(7)} chords resolve as expected, you may encounter many interesting exceptions. One that is es-

pecially common is the resolution of a $V^7/$ up to the vi (or VI) of the chord that was being tonicized. For instance, in the key of C:

Chords
$$D^7$$
 e
Analysis V^7/V vi/V (iii)

A beautiful example of a deceptive resolution occurs at the end of one of Schumann's songs (Ex. 19-8). Notice that the seventh of the vii⁰⁷/V in m. 26 is spelled enharmonically (g# instead of ab) because it is going to ascend to the a before resolving to the g in the V chord. (Incidentally, does the beginning of Ex. 19-8 remind you of a familiar Christmas carol?)

Example 19-8. Schumann, "Auf dem Rhein," Op. 51, No. 4



OTHER SECONDARY FUNCTIONS

We have discussed secondary dominants, secondary leading-tone chords, and, in the preceding section, secondary submediants. Other secondary functions do occur, but much less commonly. We tend to hear a change of key when we encounter several chords that are drawing our attention away from the original tonic. But a short progression of chords will generally not be enough to accomplish a change of key, and it is in such passages that other secondary functions occasionally occur.

Listen to Example 19-9. While one could argue in favor of a quick change of key to C in mm. 69-70, it is unlikely that we would really lose track of G as the tonal center so quickly. In this case, IV⁶/IV would seem to be a better analysis than IV⁶ in the key of C.

Example 19-9. Mozart, Sonata K. 545, II



SUMMARY OF SECONDARY FUNCTIONS

A chord whose function belongs more closely to a key other than the main key of a passage is called a secondary function (p. 242). A commonly encountered type is the secondary dominant, which may be a major-minor seventh chord or a major triad (pp. 243-45). Also frequently found is the secondary leading-tone chord, which may be a diminished triad, diminished seventh chord, or a half-diminished seventh chord (pp. 258-60). Other secondary functions, such as IV/IV, are possible but rare (pp. 270-71). Secondary dominants and leading-tone chords often appear in sequences (pp. 267-69), and deceptive resolutions of secondary functions do occur (pp. 269-70).

272 G SECONDARY FUNCTIONS 2

SELF-TEST 19-2

A. Analysis.

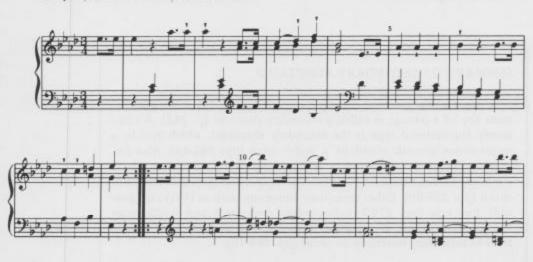
Label chords and NCTs. Think of two labels for the last chord in m. 1, one showing
how we assume the chord will function when we first hear it, the other showing how
it relates to the two chords that follow it.

Bach, "Es ist genug"



Label chords and NCTs. Review pages 267-69, then find two circle of 5ths progressions that contain more than three chords. Remember that a leading-tone chord may substitute for a chord in the circle of 5ths.

Haydn, Sonata No. 43, Minuetto I





Label chords and NCTs. Remember that the bass notes continue sounding until the pedal is lifted. The last eighth note in the melody is a rather unusual NCT. Discuss how it might be analyzed.

Mendelssohn, Song without Words, Op. 102, No. 1





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4. Label chords and NCIs. Analyze the chords in m. 47 in two ways: one in the key of F, one in some key suggested in m. 46.

Mozart, Sonata K. 333, I



Label chords and NCTs. Explain why this excerpt is not a period. Do not include the grace notes in your analysis.

Mozart, Violin Sonata K. 379, I





6. Label the chords with roman numerals. Analyze the chords from the middle of m. 88 to the middle of m. 90 in some key other than Bb. Label NCTs in the bassoon part only. Bracket the longest circle of 5ths progression you can find.

Mozart, Bassoon Concerto K. 191, I







B. For each of these problems, first analyze and resolve the given chord, being especially careful with the chord seventh and the leading tone. Then find a smooth way to lead into the given chord. Analyze all chords.

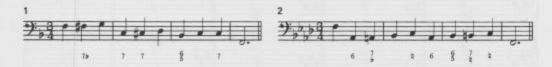




C. Harmonize each of these chorale phrases for SATB chorus. Include at least one secondary leading-tone chord or incorporate some other aspect discussed in this chapter in each harmonization.



D. Analyze the harmonies specified by each figured bass, then make an arrangement of each for SATB chorus.



EXERCISE 19-2. See Workbook.

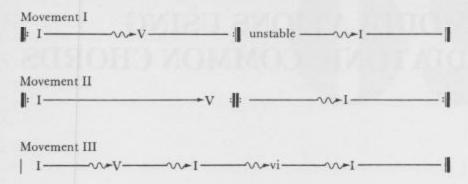
MODULATIONS USING DIATONIC COMMON CHORDS

MODULATION AND CHANGE OF KEY

Almost all compositions from the tonal era begin and end in the same key. Sometimes the *mode* will be changed, usually from minor to major, but the *keynote* (tonic note) remains the same. A piece that begins in c minor and ends in C major is still in C. Even multimovement works begin and end in the same key if the movements are intended to be performed together as a unit. (An interesting exception to this is the song cycle.) The principle also holds for single movements from multimovement works (sonatas, symphonies, song cycles, and so on), although the interior movements will often be in different keys. We will use the term *change of key* for such situations, as in, "There is a change of key from C major in the first movement to F major in the second movement."

Modulation is another matter. A modulation is a shift of tonal center that takes place within an individual movement. For while a tonal work or movement begins and ends in the same key, other tonalities generally will be hinted at, referred to, or even strongly established. The longer the work, the more time is likely to be devoted to tonalities other than the tonic and the more keys are likely to be touched upon.

The tonal structure of a composition is closely related to its overall form. For example, a classical piano sonata might have the following tonal structure. The crooked arrows represent modulations and roman numerals represent other keys in relation to the tonic.



MODULATION AND TONICIZATION

The line between modulation and tonicization (using secondary functions—V/V and so forth) is not clearly defined in tonal music, nor is it meant to be. One listener may find that a very short passage tonicizing a new tonality is enough to make a convincing modulation. For instance, you may have heard some of the excerpts in Chapters 18 and 19 as modulations, while other listeners might not have. Listen to Example 20-1. At the end of the excerpt, do you hear C or A as tonic? You could analyze this passage as tonicizing C or as modulating to C major. The difference in the analyses would not be an important one. There is no right or wrong here, there are just the interpretations of different listeners.

Example 20-1. Beethoven, Symphony No. 7, Op. 92, II

V. II	Ve.1 93	¥ .								20 00	De a constitue de la constitue
ion.	PD Nove	p tox.	•	•	1	o dd	del A	4)11	dd - fo		
		1	ŀ	H							•
						4		1			
		0	II.	Ĭ.		18	ŧ			•	
		-20									١
	4	4							1	•	
1	1		1								1
		-						a.			

It seems clear, however, that composers have always hoped the sophisticated listener (surely a minority of the audience) would manage to follow the modulations aurally. If not, many important effects would be lost. For example, if a composer has brought back a tune in another key when we had expected it to return in tonic, the composer expects us to be surprised. Otherwise, why bother? The fact that such effects may be lost on many listeners should not keep us from trying to appreciate what the composer is doing.

KEY RELATIONSHIPS

Two keys that sound the same but that are spelled differently are called enharmonically equivalent keys. C# major and D\$ major are enharmonically equivalent. If a composer for some reason respells C# as D\$, no modulation has occurred, since the keynote is unchanged.

If a major key and a minor key have the same tonic note, they are called parallel keys. The parallel minor of C major is c minor. Since parallel keys share the same tonic, we do not use the term modulation when talking about movement from one key to its parallel. The term change of mode is used instead.

If a major key and a minor key share the same key signature, they are called *relative keys*. The relative minor of C major is a minor. The term modulation is appropriate here, because movement from one tonic to another is involved. Modulations between relative keys are common, especially from minor to relative major.

Most modulations in tonal music are between closely related keys. Two keys are said to be closely related if there is a difference of no more than one sharp or flat in their key signatures. Since this definition applies to both major and minor keys, it includes the relative major or minor key, where there is no difference at all in the key signatures. Here are the closely related keys in C:

Start	ing Key: C Ma	ijor
1#	G	e
0#, 06	©	a
16	F	d

Sta	rting Key: c M	linor
26	g	ВЬ
3≽	(c)	Eb
4b	f	Ab

Another way to find the keys closely related to some starting key is to take the keys represented by the tonic, subdominant, and dominant triads and their relatives. In minor use the natural minor scale in determining the closely related keys.

Starting Ke	y: C Majo	r
Dominant	G	e
Tonic	(C)	a
Subdominant	F	d

Starting Ke	y: c Mine	7
Dominant	g	ВЬ
Tonic	0	Eb
Subdominant	f	Ab

Still another method is to take the keys represented by the diatonic major and minor triads (only) of the home key. Again, use natural minor for the minor keys. The diatonic major and minor triads can also be tonicized by secondary dominant or secondary leading-tone chords.



If you compare the three pairs of tables above, you will see that each approach yields the same result. There are always five keys closely related to the starting key. Use whichever method seems easiest to you.

All key relationships that are not enharmonic, parallel, relative, or closely related are called *foreign relationships*. Some relationships are more foreign than others. Often we describe foreign key relationships in terms of simpler relationships used in the composition. Thus a modulation from C major to D major might be described as a modulation to the dominant of the dominant; one from C major to E major might be called a modulation to the relative major of the parallel minor.

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CHECKPOINT

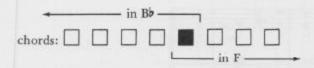
- 1. Is movement from E major to e minor a modulation? Explain. If not, what is it called? What about a# minor to bb minor?
- 2. Compare and contrast modulation and change of key.
- 3. Name the five kinds of key relationships (discussed on pp. 282-83).
- 4. Describe three ways to find the five keys closely related to some starting key.

SE	LF	TEST 2	0-1							
A.	Na	ame the re	elative key in ea	ch case.						
	1.	D	2. bb	_ 3.	f#	_ 4.	Cb	_ 5.	F	
	6.	d#	7. E	_ 8.	f	_ 9.	Еь	_ 10.	g#	
В.			e closely related or minor.	keys to	the give	n key. B	e sure to	use uppe	r case fo	or major,
	1.	Вь:								
	2.	Db:		_						
	3.	c:		_						
	4.	a#;								
	5.	c#:		_						
	6.	A:								
C.			lationship in eac ed, closely relat	100		nically	equivaler	nt, paralle	l, relativ	e and
	1.	G/f	-		6.	Cb/Gb				
	2.	B/E			7.	d/D				
	3.	a#/bb			8.	Eb/Db				
	4.	c/Ab			9.	Bb/g		A SHIP		
	5.	f#/A			10.	c#/F#	_			

EXERCISE 20-1. See Workbook.

COMMON-CHORD MODULATION

Most modulations are made smoother by using one or more chords that are common to both keys. This common chord (or chords) serves as a hinge or pivot linking the two tonalities. In the diagram below, the shaded rectangle represents the common chord in a modulation from Bb to F.



While any pair of closely related keys will have at least one diatonic triad in common, this is not the case with most foreign key relationships. Modulation to a foreign key often requires the use of an altered chord as a common chord; techniques for such modulations are presented in Chapter 21.

To discover the potential common chords between two keys, simply run through the diatonic triads found in the first key to see if they also occur in the second key. For example, there are four triads in common between Bb and F:

First key, Bb	I	ii	iii	IV	v	vi	vii ⁰
Triads in Bb	Вы	c	d	Eb	F	g	a ^o
Triads in F	Вь	C	d	e ^o	F	g	a
Second key, F	IV	v	vi	vii ⁰	1	ii	iii

In minor keys, we usually consider the chord types commonly found on each scale degree: i, ii°, III, iv, V, VI, vii°. This yields two common chords between Bb major and c minor:

First key, Bb	1	ii	ш	IV	v	vi	vii°
Triads in B	Вь	c	d	Eb	F	g	aº
Triads in c	Po	c	d ^o	Eb	f	G	Ab
Second key, c	viio	i	iio	III	iv	v	VI

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Example 20-2 illustrates a modulation from Bb major to c minor, using the ii in Bb as the common chord. Notice the symbol used to show the common chord modulation.

Example 20-2.



When you are composing a modulation, you will find that the V or viio in the new key is often the least successful choice as common chord. As Example 20-3a illustrates, such a modulation can sound too abrupt. The modulation will be smoother if the V-I progression is delayed by several chords, especially through the use of a deceptive progression, a cadential six-four, or both, as in Example 20-3b.

Example 20-3.



The smooth voice leading in the outer voices of Example 20-3b also contributes to making this modulation to a foreign key convincing and successful.

ANALYZING COMMON-CHORD MODULATION

In analyzing modulations, the procedure to follow is this:

- 1. Listen to the passage carefully.
- Find the first chord that seems to be functioning more naturally in the second key than in the first one.
- Back up one chord. If there is a diatonic common chord, it should be in this position.

In Example 20-4 the C^7 chord at the end of m. 13 functions as V_2^4 in F, but only as a secondary dominant in d. This is the chord that signals the modulation. Backing up one chord to the beginning of the measure brings us to the common chord, Bb (VI = IV).

Example 20-4. Tchaikovsky, Mazurka Op. 39, No. 10



Example 20-4 is "recomposed" in Example 20-5 to illustrate the fact that the common chord itself does not signal the modulation but just smooths it out. In Example 20-5 the Bb chord is followed not by a modulation to F but by a cadence in d.

Example 20-5.



The i-III modulation (as in Ex. 20-4) is a very common one. It can be found in most pieces in minor. In major keys the most common modulation is I-V. Example 20-6 illustrates a I-V modulation in a two-part texture. The g\$ diminished triad (or incomplete E⁷) functions more naturally in A than in E and is preceded by the common chord.

Example 20-6. Haydn, Symphony No. 73, I



Incidentally, you may hear some of the examples and exercises in this chapter as tonicizations instead of true modulations. Analyze them as modulations anyway for practice in locating common chords.

While I-V and i-III are the most frequently encountered modulations, all other closely related modulations do occur. In Example 20-7 the tonality moves briefly from I to iii. Notice that there is no change of key signature here. Indeed, the key signature of the main tonality is usually maintained throughout the work, no matter how many modulations occur.

Example 20-7. Dvořák, Quartet Op. 51, IV





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SELF-TEST 20-2

A. Analysis.

1. Label chords and NCTs. Try inserting a secondary function before beat 4 of m. 1. What effect does this have on the modulation?

Bach, "Es ist das Heil uns kommen her"



2. Label chords and NCTs. Why is it unlikely that Bach was thinking of the sonority on the last eighth of m. 7 as a seventh chord?

Bach, "Jesu, Jesu, du bist mein"



Label the chords with roman numerals. Find an example of (a) sequence and (b) repetition.

Schubert, "Frühlingssehnsucht"



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Label chords and NCTs. Remember this is an excerpt; don't be fooled by the key signature.

Schubert, "Am Feierabend," Op. 25, No. 5



5. Label chords and NCTs. Find the longest circle of 5ths harmonic progression in the excerpt. To what extent does that progression generate a sequence in the melody and bass lines?

Schumann, "Freisinn," Op. 25, No. 2



ANALYZING COMMON-CHORD MODULATION D 293

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B. Fill in the name of the new key on the second line of each exercise.

1.	Вь:	I	V	1	ii ⁶	V	vi	***		***		
2.	f#:	i	v	VI	iv ⁶ l	'-	_ : ii	V ₃	1	V^7	I	
					: ii ⁶	V	vi	IV	V	I		
3.	d:	i	V§/iv	iv	V ₂	i ⁶	1161	******	***	16	**06	
4.	A:	I	V	vi	ii ⁶ l	: iv ⁶	(i§)	ii ⁴ §	V_2^4	i ⁶	vii°6	i
				_	: iv ⁶	ii°6	i ⁶ 4	V	i			
5	Eb:	1	V4	16	IV		1	v				
5.	Lø.		* 3		: 1	vii ^o 6	16	V ₂ *	I ₆	ii ⁶	v	I

C. List the diatonic triads that could serve as common chords between each pair of keys. In minor keys, assume the usual chord qualities: i, iiº, III, iv, V, VI, viiº.

1. First key, Ab:

Triads:

Second key, Db:

2. First key, c:

Triads:

Second key, f:

3. First key, a:

Triads:

Second key, F:

4. First key, G:

Triads:

Second key, D:

5. First key, c#:

Triads:

Second key, E:

6. First key, D:

Triads:

Second key, f#:

- D. Make choral settings of Part B progressions 1 (SATB) and 2 (SAB). Activate the texture with NCTs and/or arpeggiations. Arrange the metric structure so that the last chord comes on a strong beat.
- E. Harmonize the following chorale tune for SATB chorus. The first phrase should modulate to V; the second should return to I.



F. Analyze the chords specified by this figured bass, then make an arrangement for SATB chorus.



EXERCISE 20-2. See Workbook.

SOME OTHER MODULATORY TECHNIQUES

SECONDARY FUNCTIONS AS COMMON CHORDS

Chapter 20 discussed modulations using chords that are diatonic in both keys as common chords. While diatonic common-chord modulation is probably the most frequently used modulatory technique, there are many others. This chapter will present a few of them.

In Chapter 20 we listed a three-step procedure for the analysis of modulations. These steps bear repeating here:

- 1. Listen to the passage carefully.
- Find the first chord that seems to be functioning more naturally in the second key than in the first one.
- 3. Back up one chord. If there is a diatonic common chord, it should be in this position.

The phrase "if there is a diatonic common chord" may have suggested to you that altered chords may sometimes be used as common chords. For example, consider the modulation represented below:

$$\ldots D^7 \quad G \quad a \quad A^7 \quad D \ldots$$
 Key of D:

Here the first chord that functions more naturally in D than in G is the A⁷ (V⁷ in D). But the a minor triad that precedes it cannot serve as a common chord, since it makes no sense in the context of D major. Instead, the

 $\rm A^7$ is itself the common chord, functioning as $\rm V^7/\rm V$ in G. This modulation is illustrated in Example 21-1.

Example 21-1. Beethoven, Sonata Op. 14, No. 2, I



Secondary V⁽⁷⁾ and vii^{o(7)} chords can be used as common chords. The chord might be a secondary function in the first key, in the second key, or in both keys. Sometimes the secondary function coincides with the point of modulation (the first chord in the new key), as in Example 21-1, while at other times the secondary function precedes it.

SEQUENTIAL MODULATION

It is not uncommon for a modulation to come about through the use of a sequence. This is a simple device: the composer simply states something at one pitch level and then states it again immediately at another pitch level. But the modulating sequence, instead of being diatonic, tonicizes a different pitch. Often a common chord could be analyzed in such a modulation, but it is really the sequence that brings about the new tonal center.

Example 21-2 is a clear instance of a sequential modulation. The first phrase, in C major, is transposed with little change up to d minor to create the second phrase. Sequences up by step are very frequently encountered.

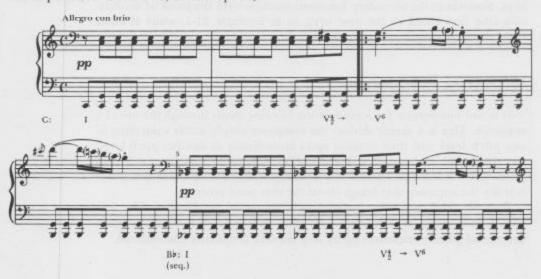
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Example 21-2. Schubert, Sonata in E Major, III



While the sequential motion in Example 21-2 is up by step, that in Example 21-3 is down by step, from C major to Bb major. Because descent by step juxtaposes foreign keys, modulating sequences of this type are not often found.

Example 21-3. Beethoven, Sonata Op. 53, I



Keep in mind that many sequential modulations are of short duration and might more properly be called tonicizations. Both Example 21-2 and 21-3 return to the first key immediately after the sequence.

Another common pattern for sequential modulation is the circle of 5ths. The circle of 5ths sequences we have studied so far have been diatonic (such as vi-ii-V-I), with occasional secondary functions thrown in. But the circle of 5ths can be used to get from one key to another. In Example 21-4 Haydn moves from B major to C major through the progression B-E-A-D-G-C, each chord except the last becoming a V⁷ of the chord that follows. It turns out that C is not the tonal goal of the passage, but serves as IV in G.

Example 21-4. Haydn, Quartet Op. 3, No. 3, IV



MODULATION BY COMMON TONE

In some modulations the hinge between the two keys is not a common chord but a common tone. Unlike the common-chord modulation, where the progression usually makes the modulation smooth and undramatic, commontone modulations often announce themselves clearly to the listener. This is the case in Example 21-5, where the note F\$ joins the keys of b minor and D major.

Example 21-5. Mozart, Fantasia K. 475





Even more dramatic is Example 21-6, which occurs at the end of the slow introduction to Beethoven's Symphony No. 4. Here an A links a pianissimo V in d minor with a fortissimo V⁷ in Bb major.

Example 21-6. Beethoven, Symphony No. 4, Op. 60, I



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The two chords linked by the common tone in a common-tone modulation usually exhibit a chromatic mediant relationship, which has the following characteristics:

- The roots of the chords are a m3 or M3 apart. Sometimes the m3 or M3 is spelled enharmonically.
- They are either both major triads or both minor triads (or, in the case of seventh chords, the triad portions of the chords are both major or both minor).

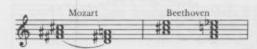
Some examples of chromatic mediant relationships are illustrated in Example 21-7.

Example 21-7.



The chromatic mediant relationships that were used by Mozart and Beethoven in Examples 21-5 and 21-6 are shown in Example 21-8.

Example 21-8.



In both the Mozart and the Beethoven examples the two keys involved were closely related. But the chromatic mediant relationship used in commontone modulations makes it easy to modulate to foreign keys as well. In Example 21-9 Schumann connects a I chord in Ab (or V in Db) to a I in E by the common tone Ab/G\$. The chromatic mediant relationship is enharmonically spelled, with Ab-E being enharmonically a M3 (Ab-Fb).

Example 21-9. Schumann, "Die Nonne," Op. 49, No. 3



MONOPHONIC MODULATION

Sometimes a modulation is carried out by a single vocal or instrumental line. This is done by introducing and emphasizing the tones that are found in the second key but not in the first. While harmonies are more or less clearly implied in a monophonic modulation, it is often better just to label the keys, as we have done in Example 21-10.

Example 21-10. Mozart, Sonata K. 576, II



This passage is also sequential, but it is not an example of a sequential modulation. The pattern in mm. 26-27 (D to e) is moved up a step (e to f#), but the modulation is not caused by the sequence itself.

DIRECT MODULATION

Sometimes modulations occur without any attempt to smooth them over through the use of common chords or common tones. Such modulations most frequently occur between phrases, so this kind of direct modulation is often called a *phrase modulation*. A typical example from a chorale appears in Example 21-11.

Example 21-11. Bach, "Schaut, ihr Sünder"



Here the first two phrases are clearly in g, but phrase 3 starts right out in B5. While common chords conceivably could be analyzed here, there is no chord that sounds like it is functioning in both keys.

Some direct modulations occur within the phrase. This kind of modulation is not frequently encountered and serves as a "court of last resort" for the analyst. In other words, if you can't find any other way to explain a modulation, the term direct modulation may be appropriate.

Example 21-12 shows the chords and voice leading of the kind of difficult modulatory passage that you may occasionally encounter. Play through the example slowly (you will definitely need to hear the example), observing the analysis below.

Example 21-12. Mozart, Fantasia K. 475, mm. 6-16 (reduced)



The first two tonicizations (these are too short to be called modulations), Db b and eb B, are achieved by common chords. Next a short sequence hints at D major (or minor) and c minor. The key of B then emerges as the goal of the passage. In a larger sense, the sequence connects the V₅ in B to the root position V⁷ in B, which makes the sequence somewhat less important harmonically than the rest of the passage. The fleeting tonicizations of D and c would be considered direct, since no other reasonable explanation is available.

SUMMARY

While diatonic common-chord modulations are the type most frequently encountered, other kinds of modulations do exist. Some of them are listed here:

- Secondary functions as common chords. The common chord is V⁽⁷⁾/ or vii⁹⁽⁷⁾/ in one or both keys (pp. 296-97).
- Sequential modulation. Transposition of a pattern causes the change in tonal center (pp. 297-99).
- Modulation by common tone. The chords joined by the common tone usually exhibit a chromatic mediant relationship (pp. 300-304).
- Monophonic modulation. A single line establishes a new tonal center (pp. 304-05).
- Direct modulation. The usual type is the phrase modulation, in which the next phrase simply begins in another key (pp. 305-06).

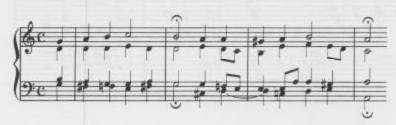
Modulatory techniques often overlap. For example, a monophonic modulation might also be sequential, or a phrase modulation might also be analyzed in terms of common chords.

SELF-TEST 21-1

A. Analysis.

 Analyze chords and NCTs. In addition, label the approach to the seventh of each seventh chord (review pp. 209-10).

Bach, "Die Nacht ist kommen"



2. First write the root and quality (like DM) of each chord below the music. Show the two occurrences of the sequential pattern. What key is implied before the double bar? After it? The first chord operating more naturally in the second key occurs right after the double bar. Could the preceding chord serve as a common chord? Label the chords with roman numerals, showing the common-chord modulation. Explain how the common-tone technique is also a factor in this modulation. To what extent is this progression a circle of 5ths progression?

Schumann, "Warum?" Op. 12, No. 3



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3. In this excerpt mm. 10-12 and 17-19 are all in the same key. Label the chords in those measures with roman numerals. Label the chords in mm. 13-16 with roman numerals in another key. Listen to mm. 11-14. How is the second key achieved? The return to the first key comes with the last chord in m. 16. What would be the best way to describe this kind of modulation?

Schubert, "Der Wegweiser," Op. 89, No. 20



4. Name the two keys established in this excerpt. How is the modulation accomplished? What is the relationship between the two keys?

Mozart, Symphony No. 41, K. 551, I

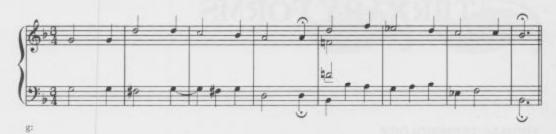




B. Analyze the harmonies implied by the soprano-bass framework below. Then add alto and tenor parts. Identify the modulatory technique used.



C. Follow the same instructions as for Part B, but enliven the texture with NCTs and arpeggiations.



EXERCISE 21-1. See Workbook.

BINARY AND TERNARY FORMS

FORMAL TERMINOLOGY

In Chapter 9 you learned the terminology of period forms—such terms as phrase, contrasting period, and parallel double period. These terms are widely used and have generally accepted meanings. The terms we introduce in this chapter are also widely used, but writers on musical form disagree on some important aspects of their meanings. In addition, some writers recognize and name subcategories and modifications of the formal types discussed in this chapter. While our approach attempts to find a common ground among the various systems, you should be aware that any book on musical form that you might read will disagree with our definitions to some extent.

BINARY FORMS

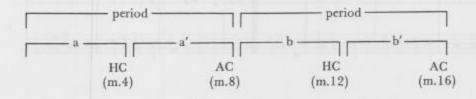
The word binary has to do with the concept of twoness. You are probably familiar with binary arithmetic, in which only two digits are used. In music a binary form is one that consists of two approximately equivalent sections. "Approximately equivalent" means that we would not use the term binary for a piece just because it has an introduction; the introduction is obviously not equivalent to the main body of the work.

Periods and double periods are binary forms, but we do not usually use the term binary for them, either, because a term like parallel period is more informative. But in Example 22-1 we see a familiar tune whose four phrases do not add up to a double period.

Example 22-1. "Greensleeves"



A diagram of the phrase structure reveals two parallel periods:



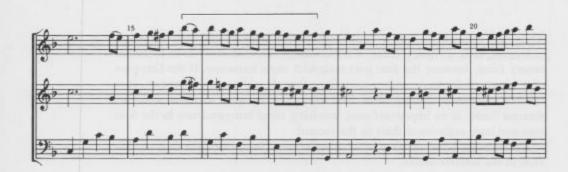
While the structure is not a double period (because of the two authentic cadences), it is a binary form. Furthermore, "Greensleeves" is in sectional binary form, because the first part ends with tonic harmony. If the first part of a binary form ends with something other than the tonic harmony, it is called a continuous binary form. The distinction between sectional and continuous forms is an important one, involving tonal independence in the first case and large-scale tonal drive in the second.

Example 22-2 illustrates a continuous binary form, since the first section ends in the relative major.

Example 22-2. Handel, Royal Fireworks Music, Bourrée









Notice in this example the reference in mm. 15-17 to the opening measures. This is not a clearly stated return of the opening material, so the example is not in ABA form. Instead, like most binary examples, it lies somewhere between AA' and AB, the second section containing elements both of contrast and continuation. This is also true of "Greensleeves," where the endings of phrases 3 and 4 were identical to the endings of phrases 1 and 2.

The Handel example (Ex. 22-2) repeats each of the two sections exactly. Repetition does not usually change our formal analysis. The Bourrée is a continuous binary form whether both, one, or no repeats are taken. However, movements or themes that consist of two repeated sections are so commonly encountered that a special term, two-reprise, is often used for them. To be thorough, then, we would say that Example 22-2 is a two-reprise continuous binary form. Incidentally, composers sometimes write out the repeats instead of using repeat signs, but we would still use the term two-reprise. Schumann and Chopin were especially fond of writing out repeats.

TERNARY FORMS

The idea of statement-contrast-return, symbolized as ABA, is an important one in musical form. The ABA or ternary form is capable of providing the structure for anything from a short theme to a lengthy movement of a sonata or symphony. The first theme from the last movement of a symphony is seen in Example 22-3. Notice that the theme is a two-reprise structure, that part one ends on tonic (m. 8), and that all of part one returns (mm. 21-28). Therefore, the theme is an example of two-reprise sectional ternary form.

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Example 22-3. Haydm, Symphony No. 101, IV

II IV

- 5

MI

Are by some





The B section of a ternary form can provide contrast with the A sections by using different melodic material, texture, tonality, or some combination of these. In the Haydn example the beginning of the B section develops the last three notes of the A section in the key of the dominant. In Example 22-4 the B section is based upon the descending melody of the A part, but both texture and tonality are consistent throughout the piece.

Example 22-4. Schumann, "Melody," Op. 68, No. 1





At first glance, Example 22-4 may appear to be a five-part form:

But we see upon closer inspection that Schumann has only written out the second repeat of a two-reprise continuous ternary form:

Many "standard" American popular songs are in sectional ternary form with the first A section repeated ("The Lady Is a Tramp," "Autumn in New York," etc.).

ROUNDED BINARY FORMS

Frequently the last part of what appears to be a ternary form returns only half of the first A section:

A B 1/2A

The term that some writers use for this frequently encountered form is rounded binary. Often the phrase structure of a rounded sectional binary example will be:

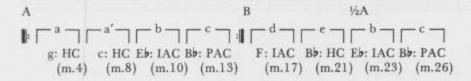


This is the form of many traditional tunes, such as "Oh, Susannah" (Ex. 22-5).

Example 22-5. "Oh, Susannah"



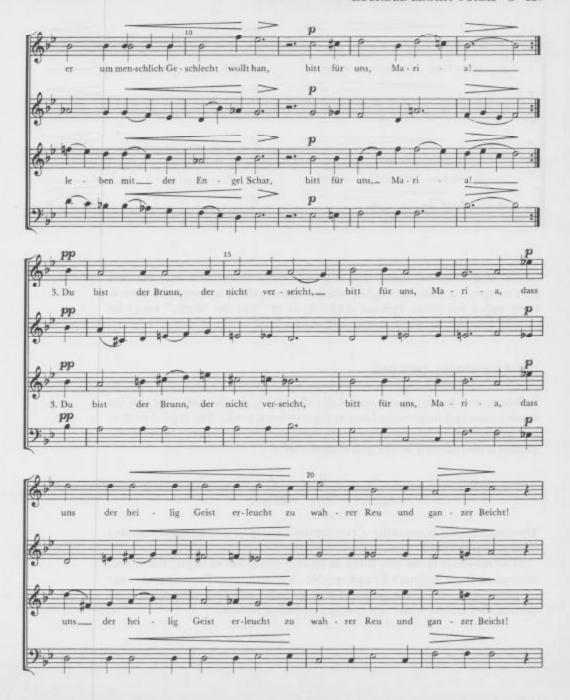
A more difficult example of rounded binary is seen in Example 22-6. The overall form is still AB½A, but the phrase structure involves several tonicizations:



Since the A section ends with the tonic triad, this, like "Oh, Susannah," is a sectional rounded binary form.

Example 22-6. Brahms, "Ruf zur Maria," Op. 22







Notice that "Ruf zur Maria" is not a two-reprise form, since only the first part is repeated. The form AAB, which this resembles, is a very old musical form called *bar form*. Perhaps AAB½A, as in "Ruf zur Maria," could be called a rounded bar form, but we will use rounded sectional binary instead.

OTHER FORMAL DESIGNS

Binary and ternary forms, especially the latter, provide the structure for many pieces and movements from multimovement works. The typical minuet and trio from a classical symphony, for example, is ternary, because the minuet is played both before and after the trio:

A B A
Minuet Trio Minuet

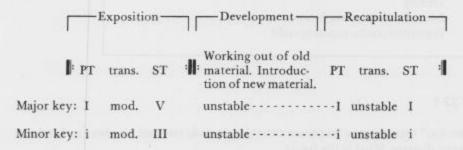
The minuet itself is generally a two-reprise ternary or a two-reprise rounded binary, as is the trio.

Slow movements are also often in ternary form. For example, the second movement from Brahms's Symphony No. 1 is in ternary form. It makes use of transitions, which are passages that connect different themes or tonal centers, and a coda, which is a special concluding section:

Section	A	trans.	В	trans.	A	Coda
Tonality	E	mod.	c#	mod.	E	E
	(1)		(vi)		(1)	(1)
Measures	1-27	28-38	39-57	57-66	67-100	101-28

Many other musical forms are beyond the scope of this text, but two of the most important forms will be discussed briefly here.

Sonata form (or sonata-allegro form) is usually found as the first movement of a sonata, string quartet, symphony, or similar work, although other movements may also be in sonata form. Early examples of sonata form resemble two-reprise continuous ternary form:



The PT and ST in the diagram stand for principal theme and subordinate theme. The repeats are seen less often in nineteenth-century music than in eighteenth-century music, while lengthy introductions and codas are more commonly found. The number of themes presented in the two key areas also tends to be larger in the later music.

Rondo form is found most frequently as the final movement of a sonata, string quartet, or symphony, although slow movements are also sometimes in rondo form. There are three common types:

Five-part rondo	A	В	A	C	A		
*	I	V	I	х	I		
Five-part rondo	A	В	A	В	A		
(variant)	I	V	I	?	I		
Seven-part rondo	A	В	A	C	A	В	A
	I	V	I	x	I	I	I

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The x in the diagrams above symbolizes some key other than I or V, while ? means that a number of common possibilities exist.

SUMMARY

Below is a list of some of the terms introduced in this chapter. If the meaning of any of them is unclear to you, read the indicated pages again.

Pages	Terms	
312-15	Binary; sectional; continuous; two-reprise	
315-18	Ternary	
318-22	Rounded binary; bar form	
322-24	Transition; coda; sonata; rondo	

SELF-TEST 22-1

- A. Sing "America," then diagram its phrase structure. Include measure numbers and cadence types in your diagram. What is the form?
- B. Diagram the piece below down to the phrase level and name the form. Assume there is a HC in m. 12, although there are other ways to hear this. Also, complete the following exercises.
 - 1. Explain the ghl's in m. 1 and m. 2.
 - 2. If there were a modulation at the end of the first section (most people hear it as a tonicization), where would the common chord be?
 - 3. Can you relate mm. 9-12 to anything in mm. 1-4?
 - 4. Find a 9-8 suspension with change of bass.
 - 5. Find parallel octaves by contrary motion.

Beethoven, Bagatelle, Op. 119, No. 4



- C. Diagram this trio down to the phrase level and name the form. Assume the phrases are four measures long. Also, complete these two exercises:
 - 1. The violas double what part (until m. 39)?
 - 2. Explain the c#2 in m. 36.

Mozart, Symphony K. 79, III



- D. Diagram this piece down to the phrase level and name the form. Assume that all phrases are four measures in length, except for an eight-measure phrase in m. 9-16. Also, complete these exercises:
 - 1. Discuss the choice of keys (tonicizations) in this piece.
 - Label the chords in mm. 17-24. Assume the modulation back to f# is a phrase modulation.
 - 3. Find a disguised set of parallel 5ths in the same measures.
 - 4. What about this piece is reminiscent of two-reprise form?

Schumann, Album Leaf, Op. 99, No. 1



EXERCISE 22-1. See Workbook.

CHROMATICISM 2





INTRODUCTION

The term *mode mixture* refers to the use of tones from one mode (*mode* here refers to the major and minor modes) in a passage that is predominantly in the other mode, Usually the mixture involves coloring a passage in the major mode with notes from its parallel minor. Mode mixture often serves an expressive purpose, and it is a frequently encountered source of altered chords. Other terms used for mode mixture are *borrowed chords* and *mutation*.

BORROWED CHORDS IN MINOR

Some writers feel that the use of raised $\hat{6}$ and $\hat{7}$ in minor is an example of mode mixture. According to that view, every V, for example, is borrowed from major, which makes mode mixture in minor a very common occurrence. Our approach is that scale degrees $\hat{6}$ and $\hat{7}$ each have two versions (review pp. 54-55), which means that the raised $\hat{3}$ is the only scale degree that can be borrowed in a minor key.

As it happens, there is a chord frequently borrowed from major that contains the raised 3, and that chord is the major tonic triad itself. The raised 3 in the tonic triad is called the *Picardy third* (no one seems to know why), and it was used to end most compositions in minor from the early 1500s until around 1750. A typical use of the Picardy third is seen in Example 23-1. Notice that the upper-case roman numeral I is enough to indicate the mode mixture. It is not necessary to add any explanatory note in the analysis. The voice leading in this example is worth examining, especially the descending tenor line and the alto part, which actually contains two lines. The reduction shows a simplification of the texture.

Example 23-1. Bach, "Helft mir Gottes Güte preisen"



The idea of the Picardy third is sometimes used on a very large scale. For instance, Beethoven's Symphony No. 5 begins in c minor, but the main key of the last movement is C major.

THE USE OF \$6 IN MAJOR

Borrowing \$\delta \hat6\$ from the parallel minor creates four borrowed chords that are frequently used: \$\vec{vii}^{07}\$, \$\vec{ii}^{0}\$, and iv. Example 23-2 illustrates these in the key of A major. Notice that the roman numerals are identical to those used in minor.

Example 23-2.



The vii⁹⁷ is actually a more useful chord than vii⁹⁷, since parallel 5ths are never a problem in its resolution. The use of vii⁹ is seen in Example 23-3. This passage serves to delay the resolution of the V⁷ in m. 39 by introducing a stepwise bass (D-C-B-Bb-A) between the V⁷ and its inversion, V⁴.

Example 23-3. Schumann, "Little Study," Op. 68, No. 14



Frequently the vii⁰⁷ does not resolve directly to I but is followed instead by V⁷. Only one voice needs to move to accomplish this, as Example 23-4 illustrates.

Example 23-4.



Incidentally, you will recall that either vii^{\$\phi 7\$} or vii^{\$\phi 7\$} may be used to tonicize a major triad (review pp. 258-259). We can now understand that the use of vii^{\$\phi 7\$} of a major triad is an example of secondary mode mixture.

The borrowed iv is frequently used in first inversion as part of a 6-b6-5 bass line, as in Example 23-5.

Example 23-5. Bach, "Helft mir Gottes Güte preisen"



The borrowed ii⁶⁷ is probably used more often than the borrowed ii^o because of the added direction provided by the dissonance. Example 23-6 is typical.

Example 23-6. Bach, "Christus, der ist mein Leben"



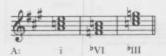
In general, $b\hat{6}$ in $vii^{\circ 7}$, iv, or $ii^{\circ (b7)}$ moves down by half step to $\hat{5}$. It is often also approached by step, either from $4\hat{6}$ or from $\hat{5}$.

OTHER BORROWED CHORDS IN MAJOR

The most frequently encountered examples of mode mixture in major are the vii⁰⁷, iv, and ii⁰⁽⁶⁷⁾ chords. The only others that occur with any frequency

are shown in Example 23-7. Notice that the symbols for the borrowed submediant and mediant triads are preceded by a flat to show that the root is lowered. Use the flat in your analysis regardless of the actual accidental found in the notation, which might be a natural, flat, or double flat, depending upon the key.

Example 23-7.



While vii⁰⁷, iv, and ii^{0(\$\phi7)} are often found alone in major-mode passages, the minor tonic triad frequently occurs in longer passages in the parallel minor. In Example 23-8 the minor mode takes over in m. 31, and major is not reestablished until the arrival of the D\$\phi\$ in m. 36. This example also illustrates the bVI, preceded here by its secondary dominant. The bVI is sometimes used with dramatic effect in deceptive cadences: V-bVI. The V+\$\frac{1}{2}\$/IV in Example 23-8 is an augmented dominant, which will be discussed in a later chapter.

Example 23-8. Haydn, Quartet Op. 9, No. 2, I



V7



16

The $^{\flat}III$ is by no means a frequently used chord. In Example 23-9 the $^{\flat}III$ is preceded by its secondary dominant and followed by a borrowed vii°7. The sonorities in mm. 26-27 with C and C‡ in the bass are passing chords that connect the V⁷ to the V⁶₅ (see the reduction). These chords do not require roman numerals.

Example 23-9. Schumann, "Ein Jüngling liebt ein Mädchen," Op. 48, No. 11



CHECKPOINT

- 1. What is the name for the raised $\hat{3}$ in the tonic triad in the minor mode?
- Show the chord symbols for the borrowed chords in major discussed in this chapter,
- 3. To what does secondary mode mixture refer?
- 4. How does $\flat \hat{6}$ most often proceed: up by step, down by step, or down by leap?

MODULATIONS INVOLVING MODE MIXTURE

Mode mixture is often employed as a signal to the listener that a modulation is taking place. In Example 23-10 a modulation from C to G occurs. In m. 42 Mozart uses an a⁷ chord in third inversion. This could, of course, be a vi⁴/₂ in C. In the next measure the fifth of the chord is lowered, creating an a⁴⁷. This helps to weaken our perception of C as a tonic and makes the following V⁶/₅-I progression more convincing as a modulation to G.

Example 23-10. Mozart, Sonata K. 309, III



Mode mixture also simplifies modulation to certain foreign keys. If a passage in major slips into the parallel minor, all of the keys that are closely related to the parallel minor come within easy reach. For example, mixture in the key of E gives us access to all the keys in the chart below:

$$G = G$$

Schumann uses mixture in Example 23-11 to move to the dominant of the parallel minor: E→(e)→b.

Example 23-11. Schumann, "Liebeslied," Op. 51, No. 5



340 D MODE MIXTURE

SELF-TEST 23-1

A. Notate the following chords in the specified inversions. Include key signatures.



B. Label the following chords. Include inversion symbols.



C. Analysis.

1. Label chords and NCTs, Circle the roman numerals of any borrowed chords.

Bach, "Warum sollt' ich mich denn grämen"



2. Label the chords, circling the roman numerals of any borrowed chords.

Schubert, Fantasy Op. 15



342 D MODE MIXTURE

Label the chords, circling the roman numerals of any borrowed chords. Which part is doubling the violas in mm. 47-51? The horn in D sounds a m7 lower than written.

Haydn, Symphony No. 73, I





MODULATIONS INVOLVING MODE MIXTURE 0 343

4. Label the chords, circling the roman numerals of any borrowed chords. Discuss any diminished seventh chords that occur in terms of the resolution of their tritones.

Schubert, Symphony in Bb, I



 Label the chords with roman numerals. This excerpt contains a modulation to Bb major. Point out any examples of mode mixture in the portion of the excerpt that is in Bb.

Mozart, Sonata K. 282, I





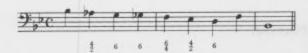
- D. Part writing. Analyze the chords implied by the soprano-bass framework. Then fill in alto and tenor parts. Be sure to use the specified mode mixture.
 - 1. Include a vii⁰⁷.



2. Include a ii %



E. Analyze the chords specified by this figured bass, then make an arrangement for SATB chorus.



EXERCISE 23-1. See Workbook.

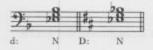
THE NEAPOLITAN CHORD

INTRODUCTION

While the I-V-I progression is the basic organizing force in tonal harmony, much of the foreground harmonic interest in a tonal passage may be provided by the ways in which the dominant is approached. One of the more colorful chords that can be used to precede the dominant is the Neapolitan.

The Neapolitan chord derives its name from an important group of eighteenth-century opera composers who were associated with the city of Naples. While the composers of the "Neapolitan school" frequently used this chord in their music, they did not originate it but inherited it from earlier composers. Nevertheless, the term Neapolitan has survived, and we will make use of it and its abbreviation, N. Simply stated, the Neapolitan triad is a major triad constructed upon the lowered second scale degree. One accidental is required to spell the Neapolitan in a minor key and two in a major key, as is illustrated in Example 24-1.

Example 24-1.



CONVENTIONAL USE OF THE NEAPOLITAN

The Neapolitan is usually found in the minor mode and in first inversion. In fact, the first inversion is so typical that the Neapolitan triad is often referred to as the Neapolitan sixth chord. Example 24-2 illustrates several

contexts in which the N⁶ is commonly found. At the piano, establish the key of e minor and play through the example so you will become familiar with the distinctive sound of the N⁶.

Example 24-2.



Example 24-2 illustrates several characteristics of the N6:

- When the N⁶ is incomplete, the fifth is omitted. When a tone is doubled, it is the third of the N⁶.
- The N⁶ moves to V (or i⁶/₄·V), but vii⁰⁷/V may appear between the N⁶ and the V. The N⁶ would usually not be followed by iv or ii⁰.
- 3. The b2 (the root of the N6) moves down, especially when it appears in the melody. Its goal is the leading tone, which lies at the unusual interval of a °3 below b2 (see the soprano lines in Exx. 24-2a and 24-2b). But the °3 is filled in by the tonic pitch when the N6 moves first to if or vii°7/V (Exx. 24-2c and 24-2d).
- 4. When the N⁶ moves to i⁶₄, as in Example 24-2c, parallel 4ths should be used to avoid parallel 5ths. Parallel 5ths would be created in Example 24-2c by transposing the alto line an octave lower.
- 5. The N6, like the unaltered ii o6, is usually preceded by VI, iv, or i.

In Example 24-3 the N⁶ appears in a keyboard texture. Both Neapolitans in the example proceed directly to V. In the resolution of the first N⁶, the interval of a °3 in the melody is filled in by a supermetrical passing tone (the a²). Notice that the freer treatment of the inner parts allows the $\flat \hat{2}$ (b \flat) in the left hand to move upward to $\natural \hat{2}$. This does not disturb the listener, whose attention is drawn to the resolution of the more significant b $\flat \hat{2}$ in the melody.

Example 24-3. Beethoven, Bagatelle Op. 119, No. 9



OTHER USES OF THE NEAPOLITAN

The Neapolitan is usually employed in first inversion in the minor mode, and it usually moves toward V. However, several other contexts for the Neapolitan may be encountered:

- The Neapolitan may appear in root position (N) or, rarely, in second inversion (N₄⁶). In both cases, the bass will probably be doubled in a four-part texture.
- 2. The Neapolitan may occur in the major mode.
- The Neapolitan may be tonicized. This may take the form of a single chord (such as V⁷/N), or it might be a genuine modulation to the key of the Neapolitan. In some cases VI may function as V/N.
- In a modulation the common chord may be a Neapolitan in either key.
 Foreign key relationships might be involved in such a modulation.
- The Neapolitan may, on occasion, serve a function other than that of a pre-dominant chord.
- 6. In rare instances, the Neapolitan may include a seventh (NM7).

The examples below illustrate most of these uses of the Neapolitan.

Both a V⁷/N and a root position Neapolitan occur in Example 24-4. Notice the tritone root relationship between the N and V chords.

Example 24-4. Chopin, Mazurka Op. 7, No. 2



In Example 24-5 Brahms uses the N⁶ in a major key. However, he does prepare for the N⁶ by using a borrowed iv chord. Incidentally, the I⁶₄ in m. 21 is a cadential six-four that is interrupted for a measure and a half, only to return in m. 24.

Example 24-5. Brahms, "Dein Herzlein mild," Op. 62, No. 4



Example 24-6 begins in A major and ends in ab minor (although neither key signature agrees with that analysis). The 16 chord before the double bar is enharmonically the same as a Bb major triad, which is the Neapolitan in ab. It then moves normally to i⁴₄-V in ab.

Example 24-6. Schubert, Moment Musical Op. 94, No. 6



The chord in m. 108 of Example 24-7 contains all the notes of a Neapolitan chord, but it does not move to V. Instead, as the reduction shows, the N^6 serves as a neighbor chord to the i^6 that appears on either side of it.

Example 24-7. Mozart, Sonata K. 310, I



SELF-TEST 24-1

A. Label each chord. Include inversion symbols, if any.





B. Notate each chord. Include key signatures.



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C. Analysis.

 Label chords with appropriate symbols. Try to think of two interpretations of the first chord in m. 16.

Haydn, Sonata No. 37, II



Label chords and NCTs. The form of this excerpt is a (parallel/contrasting) (period/double period), with a two-measure introduction.

Schubert, "Der Müller und der Bach," Op. 25, No. 19



3. Label chords and NCTs. Assume that the fal in m. 11 is a chord tone.

Chopin, Prelude Op. 28, No. 6



4. Label chords and NCTs in this excerpt.

Beethoven, Andante Favori



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D. For each exercise provide the correct key signature and notate the specified chords preceding and following the N⁶. Use the given two-, three-, or four-part texture in each case.



E. Analyze the harmonies implied by the soprano-bass framework. Then fill in inner voices to make a four-part texture. Each excerpt should include a Neapolitan chord.





G. Make a setting of the following progression in d minor for three-part chorus. Then make another setting in b minor for four-part chorus.

i vi /
$$V_2^4/N$$
 N^6 / V V_2^4 i^6

EXERCISE 24-1. See Workbook.

AUGMENTED SIXTH CHORDS 1

THE INTERVAL OF THE AUGMENTED SIXTH

One way to emphasize a tone is to approach it by a half step, either from above or from below. In Examples 25-1a and 25-1b the dominant in g minor is approached by half steps. Approaching the dominant by half steps from above and below at the same time makes for an even stronger approach to the dominant, which is illustrated in Example 25-1c. You will notice that the two approaching tones form a vertical interval of an augmented sixth. This method of approaching the dominant distinguishes a whole category of chords called augmented sixth chords.

Example 25-1.



The characteristic elements of most augmented sixth chords are those illustrated in Example 25-1c:

- 1. The chord being approached is the V chord.
- The minor-mode 6 (chromatically lowered if in a major key) appears in the bass.
- 3. The #4 is in an upper part.

The interval of an +6 formed by these pitches is enharmonically equivalent to a m7, but the difference between the effect of the +6 and that of the m7 is easily detected by the ear. The m7 tends to resolve as in Example 25-2a, the +6 as in Example 25-2b. Play both parts of Example 25-2, and notice the contrast in the effect of these two intervals.

Example 25-2.



In a two-part texture the augmented sixth chord appears as in Examples 25-1c and 25-2b. The analytical symbol to be used is simply +6. Notice that the numeral is an arabic +6 and not a roman +VI.

The interval of the +6 usually resolves outward by half step, following the tendencies of the tones to lead to the dominant. Less commonly, the top pitch of the +6 may descend chromatically to produce the seventh of a V⁷. This generally occurs only in +6 chords that have three or more pitch classes (see below), with the top pitch of the +6 interval in an inner part.

For the reasons mentioned above, the +6 chord is among the strongest of all approaches to the dominant, and it generally moves directly to V (or i⁶₄-V). It is frequently used just after a modulation to make it clear to the listener that a modulation has, in fact, occurred. Like the N⁶, the +6 originated in the minor mode, but it was soon found to be equally useful in major keys. When used in major keys, it is often preceded by mode mixture.

THE ITALIAN AUGMENTED SIXTH CHORD

In most cases +6 chords contain more than two pitch classes. When a third pitch class is included, it is usually the tonic pitch. This combination of tones is referred to as an *Italian augmented sixth chord* (It+6), which is illustrated in Example 25-3. This geographical term, like the others we will be using, has no historical authenticity—it is simply a convenient and traditional label.

Example 25-3.



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The It+6, like any other +6 chord, resolves to V or I₄⁶-V. In a four-part texture the tonic pitch is doubled. Typical resolutions are shown in Example 25-4.

Example 25-4.



Example 25-5 includes an illustration of the It+6 in a three-part texture. Most of the excerpt consists of parallel 6ths (soprano and bass) surrounding a tonic pedal (alto). Notice that the bass reaches $\hat{5}$ four times, with different harmony in each case.

Example 25-5. Mozart, The Magic Flute, K. 620, Overture (piano score)



THE FRENCH AUGMENTED SIXTH CHORD

There are two common +6 chords that contain four pitch classes, and both of them may be thought of as It+6 chords with one pitch added. If the added tone is 2, the sonority is referred to as a French augmented sixth chord (Fr+6), which is shown in Example 25-6.

Example 25-6.

The Fr+6 works best in four-part or free textures. Typical resolutions are illustrated in Example 25-7.

Example 25-7.



In Example 25-8 a Fr+6 provides the harmonic color for the climax of an entire movement. At this point, in m. 38, Beethoven shifts to a seven-part texture, which explains why $\sharp 4$ is doubled. In the following measure there is a sudden return to *piano* and a thinner texture, with the note of resolution $(\hat{5})$ appearing only in the bass. Notice that the bass and "tenor" move in parallel 3rds throughout.

Example 25-8. Beethoven, Sonata Op. 10, No. 3, III



THE GERMAN AUGMENTED SIXTH CHORD

The other common +6 chord that contains four pitch classes is the German augmented sixth chord (Ger+6, not G6). It may be thought of as an It+6 with the addition of a minor-mode 3 (chromatically lowered if in a major key). The Ger+6 is shown in Example 25-9.

Example 25-9.



As with any +6 chord, the usual resolutions of the Ger+6 are to V and to i_4^6 -V. When the Ger+6 moves directly to V, parallel 5ths are apt to result, as in Example 25-10. Because the ear is distracted by the resolution of the interval of the +6, the parallels are not so objectionable here, and they may occasionally be encountered.

Example 25-10.



However, composers usually manage either to hide the parallels through anticipations or suspensions or to avoid them through the use of leaps or arpeggiations. In Example 25-11 Mozart first avoids the 5ths by leaping the ebl to be (a o4), then, in the second Ger+6, by arpeggiating the bb to g before the resolution, turning the Ger+6 into an It+6.



A simpler resolution to the problem of the parallels is to delay the V through the use of a cadential six-four, as in Example 25-12,

Example 25-12.



You may have noticed that the last Ger+6 in Example 25-12 is spelled differently from the others, although it sounds the same (a#=bb). This is a fairly common enharmonic spelling of the Ger+6, used in the major mode only, when the Ger+6 is going to I4. The reason for its use is more for the eye than for the ear: a# to b# looks more reasonable than bb to b#, since we expect raised notes to ascend and lowered ones to descend.

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Enharmonic spellings are also involved when we compare the Ger+6 with the V^7/N . The listener can tell the Ger+6 from a dominant seventh chord only by its resolution, a feature that can lead to some interesting modulations (to be discussed in Chapter 27). For instance, the Ger+6 in m. 33 of Example 25-13 sounds like a V^7/N (a $D\mathfrak{b}^7$), especially since it is preceded by a N^6 . The resolution to V^7 is needed before its function is clear to us. Notice also that the $\sharp 4$ (b \sharp) moves down chromatically to $\sharp 4$ (b \sharp) to provide the seventh of the V^7 chord.

Example 25-13. Beethoven, Quartet Op. 18, No. 1, II



SELF-TEST 25-1

A. Label each chord, using inversion symbols where appropriate.



B. Notate each chord in close position. Augmented sixth chords should be in their customary bass position (\$\overline{b}\$\hat{o}\$ in the bass). Include key signatures.



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- C. Label the chords in each excerpt below. Also, discuss the details of the resolution of each +6 chord. Do \$\displays 4\ and \$\displays 6\ follow their expected resolutions to \$\displays ? How are parallel 5ths avoided in the Ger+6 resolution(s)?
 - 1. This excerpt modulates.

Haydn, Quartet Op. 64, No. 2, III



This sixteen-measure excerpt is an elaborated i-V progression. The chords in mm. 15, 17, and 19 are already labeled.

Mozart, Piano Concerto K. 491, I







3. In this excerpt find an example of a chromatic passing tone.

Haydn, Quartet Op. 20, No. 5, I



4. The two excerpts below are from the same song.

Beethoven, "Die Ehre Gottes aus der Natur," Op. 48, No. 4



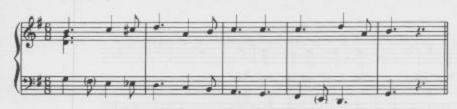


D. Supply the missing voices for each fragment below. All but exercise 5 are four-part textures.





E. Analyze the harmonies implied by this soprano-bass framework, and try to include a Fr+6 and an example of mode mixture in your harmonization. Then complete the piano texture by filling in two inner parts in the treble-clef staff, following good voice-leading procedures.



F. Analyze the chords specified by this figured bass, then make an arrangement for SATB chorus.



EXERCISE 25-1. See Workbook.

AUGMENTED SIXTH CHORDS 2

INTRODUCTION

Chapter 25 presented augmented sixth chords as they usually occur in tonal music: with (b)6 in the bass, #4 in some upper part, and resolving outward to form a P8 on 5, which serves as the root of a V chord. Augmented sixth chords are sometimes used in other ways, however, including these:

- 1. A chord member other than (b)6 may be used as the bass note.
- The interval of the +6 may be created by scale degrees other than (b)6 and #4 in order to lead to some scale degree other than 5.
- The interval of the +6 may expand to the third or the fifth of a chord instead of to its root.
- The augmented sixth chord may not be one of the three commonly encountered types.

These four possibilities are discussed in more detail in the following sections. The list is organized according to frequency of occurrence, which means that you would rarely encounter the uses listed toward the bottom.

OTHER BASS POSITIONS

We have not yet discussed what pitch serves as the root of an augmented sixth chord. The reason for this is simply that the augmented sixth chord is a linear sonority that has no root. One can arrange the notes of a Fr+6 to resemble an altered ii⁶⁷, and the It+6 and Ger+6 sonorities can be likened to altered iv⁷ chords. Indeed, many theorists prefer to use modified roman numerals as a convenient way to represent augmented sixth chords. Still, these chords are rootless; they have only a most common bass position, that position having the (b)ô in the bass.

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Although the minor-mode 6 usually constitutes the bass of an +6 chord, other bass positions do occur, especially in music of the romantic period. Generally, the voice leading will be identical or similar to that found in the standard resolutions discussed in Chapter 25, but the interval of the +6 will often be inverted to become a °3. The most common of the various possibilities is that with \$4 in the bass, as in Example 26-1. Notice also the enharmonic spelling of the Ger+6.

Example 26-1. Brahms, "Ruf zur Maria," Op. 22, No. 5



The only other bass position that occurs with any frequency is that with the tonic pitch in the bass, as in Example 26-2.

Example 26-2. Brahms, Symphony No. 1, Op. 68, II (piano reduction)



Because +6 chords have no root and therefore technically cannot be inverted, it is not necessary to show the bass position of the chord in the analytical symbol. Just use It+6, or whatever is appropriate, regardless of the bass position.

RESOLUTIONS TO OTHER SCALE DEGREES

As we have shown, the interval of the +6 is usually created by the half steps above and below $\hat{5}$. Especially in the romantic period, this same principle is occasionally applied to other scale degrees as well. In such cases we will employ analytical symbols similar to those used with secondary functions to indicate that the +6 is embellishing some scale degree other than the dominant. The +6 chords we have presented so far have all embellished the dominant, and we could have used symbols like Fr+6/V for these chords. However, we have followed the custom of symbolizing Fr+6/V as Fr+6. But when the +6 embellishes some scale degree other than $\hat{5}$, we will make this clear by using the method shown in Example 26-3.

Example 26-3.



In order to spell or recognize the various +6 types in these contexts, you will have to be familiar with the interval content of the three kinds of augmented sixth chord. In Example 26-4, +6 chords embellishing î are formed by transposing the intervals from the more familiar +6/V spellings.

Example 26-4.



Often when an augmented sixth chord resolves to something other than V, the chord that it resolves to is a secondary dominant. In that case, it is probably better to show the analysis in relationship to the chord being tonicized. The chord in m. 7 of Example 26-5 is analyzed as a Fr+6/I. But because the major I chord could be heard as a V/iv, the Fr+6 is also analyzed in relationship to the key of the subdominant.

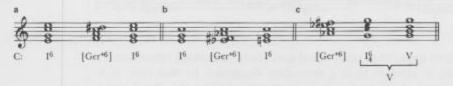
Example 26-5. Brahms, Symphony No. 4, Op. 98, IV (piano reduction)



RESOLUTIONS TO OTHER CHORD MEMBERS

In all of the resolutions discussed so far, the interval of the +6 (or °3) has resolved to the root of the next chord (which was sometimes ornamented with a cadential six-four chord). Much less common is the resolution of the +6 or °3 to the third of a chord (as in Ex. 26-6a) or to the fifth of a chord (Ex. 26-6b). Such a use of the augmented sixth sonority is very different from those discussed so far. To signify this, the chord symbol is placed in brackets. It is important to realize that Examples 26-6b and Ex. 26-6c have little in common, even though they both show identically spelled Ger+6 chords followed by tonic triads. The tonic triad in Example 26-6b is in the relatively stable six-three position, while the tonic triad in Example 26-6c is a cadential six-four standing for the root position dominant that follows.

Example 26-6.



An example of a Ger+6 resolving to the third of a i6 is seen in Example 26-7. The listener hearing the piece for the first time probably assumes that the Ger+6 signals a modulation to D until the f# minor triad is heard in m. 109.

Example 26-7. Schumann, "Novellette," Op. 21, No. 7 (simplified texture)



OTHER TYPES OF AUGMENTED SIXTH CHORDS

Only rarely will you encounter an augmented sixth chord that is not one of the three standard types: Italian, French, or German. When you do encounter such a sonority, the symbol +6 will suffice to show the characteristic interval found in the chord. One such chord is seen in Example 26-8. Here the +6 sonority resembles a Fr+6, but the db¹ would have to be a dt¹ for it to be a Fr+6.

Example 26-8. Strauss, Till Eulenspiegel's Merry Pranks, Op. 24 (piano reduction)



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The +6 symbol may also be used for what is actually a very common occurrence—the use of two or three augmented sixth sonorities within the span of a single +6 interval. In Example 26-9 the pitches of all three types of augmented sixth chord appear in m. 15. In such cases the symbol +6 would seem to be a good solution, although you could label the sonority that has the longest duration (Ger+6 in Ex. 26-9) or the sonority that appears last (It+6 in Ex. 26-9).

Example 26-9. Mozart, Symphony No. 40, K. 550, I (piano reduction)



SELF-TEST 26-1

A. Label the following chords.



B. Analysis.

1. Label the chords in this short excerpt.

Brahms, Quartet No. 2, Op. 51, No. 2, III



2. Label the chords in this excerpt.

Tchaikovsky, "The Witch," Op. 39, No. 20



3. This is the ending of one of Schumann's better known songs. What national anthem is hinted at in the vocal part? Notice also the contrast between the diatonic setting of the text and the more chromatic codetta that ends the song. Label chords and NCTs.

Schumann, "Die beiden Grenadiere," Op. 49, No. 1



EXERCISE 26-1. See Workbook.

ENHARMONIC SPELLINGS AND ENHARMONIC MODULATIONS

ENHARMONIC SPELLINGS

Enharmonic spellings are used by composers for a variety of reasons. One reason is to indicate clearly the direction in which a pitch will move. For example, consider the vii⁰⁷/V in Example 27-1a. When the vii⁰⁷/V moves to the cadential I₄⁶, there is nowhere for the Gb to go but up to Gb. This motion looks a little more sensible when the Gb is spelled as F\$, as it is in Example 27-1b, but the aural result with any fixed-pitch instrument is the same. This new spelling changes the chord visually from an a⁰⁷ to an f\$⁰⁷, but it does not change its function or the analysis. Of course, when the vii⁰⁷/V moves directly to V, as in Example 27-1c, the Gb spelling poses no problem, since the seventh resolves immediately downward to the F.

Example 27-1.



Example 27-2 illustrates the same chord in a Beethoven sonata. Here we find two bass positions of the enharmonic vii⁹⁷/V. The entire passage is analyzed as an embellished [f-V-I progression.

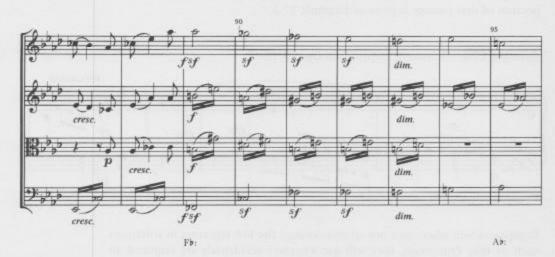
Example 27-2. Beethoven, Sonata Op. 10, No. 1, I



Another reason for enharmonic spellings is the desire on the part of the composer to make things easier for the performer. This is presumably the case in Example 27-3, which changes briefly from Ab to ab (mode mixture), then reaches Fb (VI of ab) before returning to Ab. In the Fb portion (mm. 89-92) the viola and second violin are notated enharmonically in the key of E, perhaps to make their tremolos easier to read.

Example 27-3. Mendelssohn, Quartet Op. 80, IV





Instead of enharmonically spelling only some of the parts, as Mendelssohn did in the example above, composers usually respell the key entirely. In Schubert's Trio in $B\flat$ there is a modulation from $B\flat$ to $G\flat$ (\flat VI), which then

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changes by mode mixture into go minor. In order to avoid this awkward key (the key signature would contain 9 flats!), Schubert quite reasonably notates it in fs minor. The harmonic skeleton of this passage is shown in Example 27-4.

Example 27-4. Schubert, Trio in Bb (reduction)



Examples of enharmonically spelled keys abound in nineteenth-century music. Schubert's Impromptu Op. 90, No. 2, contains a passage with the following tonal structure: Eb-eb-cb, the last being spelled as b minor. The eb-cb portion of that passage is given as Example 27-5.

Example 27-5. Schubert, Impromptu Op. 90, No. 2



Composers will often—but not always—change the key signature in situations such as this. Otherwise, they will use whatever accidentals are required. In either case, the enharmonically spelled key is an example of enharmonic spelling for convenience, and the listener is entirely unaware of the enharmonic spelling. Enharmonic spelling for convenience is not the same as enharmonic modulation, which is a much more interesting topic and which is the subject of the rest of this chapter.

ENHARMONIC REINTERPRETATION

The enharmonic spelling discussed so far in this chapter is intended primarily for the eye, not the ear. But there are four sonorities used in tonal music that can be reinterpreted enharmonically in a different key (not in enharmonic keys, like Gb and F#), and the listener can hear this reinterpretation when these chords resolve.

One such sonority is the major-minor seventh, which can serve either as a V7 or as a Ger+6 (Ex. 27-6a). Another is the diminished seventh chord, where any tone can serve as the leading tone (Ex. 27-6b). The other two possibilities are the augmented triad (Ex. 27-6c) and the Fr+6 chord (Ex. 27-6d). although these chords are rarely reinterpreted enharmonically.

Example 27-6.



Fr*6 F#: Fr*6

The implications of all of this are that when the listener hears a major-minor seventh or diminished seventh sonority, certain expectations will probably arise (such as, "This chord will resolve as a V⁷ in Db"), only to be pleasantly thwarted on occasion by an equally logical enharmonic reinterpretation (such as, in this case, a Ger⁺⁶ in C). This process, which is often reserved for especially dramatic spots in a composition, is known as enharmonic modulation.

CHECKPOINT

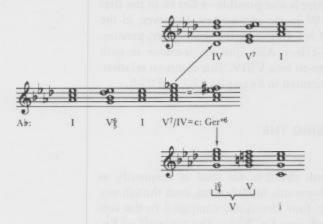
- 1, Contrast enharmonic spelling for convenience and enharmonic modulation,
- Make up a key scheme starting with B> that might result in enharmonic spelling for the convenience of the performer.
- 3. What four sonorities can be reinterpreted enharmonically so that they occur in different keys?
- 4. Which two of these four sonorities are commonly used enharmonically in tonal music?

ENHARMONIC MODULATIONS USING THE MAJOR MINOR SEVENTH SONORITY

The term enharmonic modulation is used to refer to a modulation in which the common chord is reinterpreted enharmonically in order to fit into the second key. The actual spelling of the chord is not important—it might be spelled as it would appear in the first key, or in the second key, or even in both if it occurs more than once. What is important is that the common chord can be heard as a sensible chord in both keys.

The person listening to Example 27-7 probably expects the fourth chord to resolve as a V⁷/IV in Ab, as it does in the top staff. But the possibility exists that it may be enharmonically reinterpreted as a Ger+6 in c minor, as seen on the bottom staff. This reinterpretation results in an enharmonic modulation from Ab to c. Play Example 27-7 several times, comparing the effect of the two resolutions of the major-minor seventh sonority.

Example 27-7.



The last chord in m. 41 of Example 27-8 sounds like a G^7 chord. Since the tonality at this point is G, the listener probably expects the next measure to begin with a C chord (IV in G). Instead, the G^7 is treated and spelled as a Ger+6 in B major.

Example 27-8. Schubert, "Der Neugierige," Op. 25, No. 6



Any V⁷ chord or secondary V⁷ in the first key can be reinterpreted as a Ger+6 chord in the new key. The reverse is also possible—a Ger+6 in the first key can become a V⁷ or secondary V⁷ in the second key. However, in the majority of cases the common chord is a Ger+6 in the second key, presumably because of its more dramatic effect. Also, the major-minor seventh chord in the first key seems most often to be a V⁷/IV. This common relationship, V⁷/IV becoming Ger+6, was illustrated in Examples 27-7 and 27-8.

ENHARMONIC MODULATIONS USING THE DIMINISHED SEVENTH CHORD

Surprisingly, the diminished seventh chord is not used as frequently as the major-minor seventh chord in enharmonic modulations, even though any diminished seventh chord can lead in four directions, compared to the two possible with the major-minor seventh (see Ex. 27-6). The top staff of Example 27-9 shows four resolutions of the same diminished seventh sonority. The bottom staff is similar, except that the diminished seventh chord in each case is followed by a V⁷ before the resolution to tonic. Both methods—vii⁰⁷-I and vii⁰⁷-V⁷-I—are used in enharmonic modulations. You should play through Example 27-9 to familiarize yourself with the sound of these resolutions.

Example 27-9.



Example 27-10 is from the end of the first part of a movement by Haydn. The movement begins in f minor and modulates to Ab, the relative major. Because the composer is going to repeat the entire first section, he must

modulate back to f minor before the repeat. Haydn prepares for the modulation in mm. 46-47 by using a g⁶⁷ chord (vii⁶⁷ in Ab), just as in the top staff of Example 27-9a. In the first ending, however, he uses the same sonority, respelled as vii⁶ in f, and resolves it as in the bottom staff of Example 27-9b, bringing us back to f minor for the repeat.

Example 27-10. Haydn, Quartet Op. 20, No. 5, I



Example 27-11 begins and ends in A major. A c# or chord appears in m. 140, but the listener probably hears it as an a# or, which is a vii of /ii in A major (vii or /IV would be another possibility). But Beethoven treats this chord as a vii of in F, the c# in the bass really acting like a db. This is similar to the bottom staff of Example 27-9b. When this same chord recurs in m. 145, it sounds like a vii or /vi in F, because it follows V and seems to imply a V-vii or /vi-vi deceptive progression. Instead, it is treated (and notated) as an a# or , a vii or /ii in A major.

Example 27-11. Beethoven, Sonata Op. 2, No. 2, IV



The simplified version that appears in Example 27-11 is worth studying. Play it and listen to it, paying special attention to the bass line. You will find that mm. 140-45 constitute a harmonic digression, keeping the c# in m. 139 from reaching its goal, d, until m. 146. The entire example is a parallel period, the second phrase being expanded from four to ten measures by means of the passage that tonicizes F. This is indicated by the dotted phrase mark in the example.

SELF-TEST 27-1

A. Analyze the given chord. Then show any possible enharmonic reinterpretation(s) of that chord, keeping the same key signature. Each enharmonic reinterpretation should involve a new key, not just an enharmonically equivalent key (such as g# and ab). Number 1 is given as an example.



B. Each of the following short examples contains an enharmonic modulation. Analyze each example after playing it slowly at the piano and listening for the point of modulation. Do not try to analyze these examples without hearing them.







- C. Analysis. Be sure to play as much of each excerpt at the piano as you can, simplifying the texture as necessary.
 - 1. This excerpt begins in Gb and ends in bb minor, although Bb major is the eventual goal. Label all of the chords. Can you relate the F-Gb-F figure in the last measure to anything that has happened earlier? That is, does it remind you of any other figure heard in this excerpt?

Beethoven, "Adelaide," Op. 46





2. This excerpt begins in Db and ends in A. What flat key is A enharmonic with? How does that key relate to Db? Is this an example of an enharmonic modulation? Explain. If you were going to analyze this modulation as a common-chord modulation, which would be the common chord? What other modulatory technique discussed in Chapter 21 could be used to explain this modulation? Note: The chords in this excerpt can all be analyzed by reference only to the lower staff.

Chopin, Nocturne Op. 27, No. 2





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3. This excerpt begins and ends in c minor. Label all of the chords. This passage really represents an extended V-i cadence in c minor. An important role in extending the passage is played by the pitch class F#/Gb. Make a list of all of the chords containing F#/Gb and their locations.

Beethoven, Sonata Op. 10, No. 1, IV



4. This passage begins in C and ends in E, although the eventual goal is the key of A. Label all chords in this excerpt. Is there an important pitch class in this excerpt similar to the F#/Gb in the previous passage? If so, which one do you think it is and why?

Schubert, Quartet Op. 125, No. 2, II



EXERCISE 27-1. See Workbook.

SOME OTHER ELEMENTS OF THE HARMONIC VOCABULARY

INTRODUCTION

Tonal harmony, on the surface a simple and natural musical phenomenon, is in reality a very complex and variable set of relationships. Many people have devoted years to the study of tonal harmony and to the almost limitless number of musical structures for which it has provided the foundation. It surely represents one of the highest achievements of Western art and intellect.

Because the subject is so complex, we have been concerned throughout this text with those harmonic events in tonal music that could be thought of as the basic vocabulary of the system—those events that occur with a relatively high degree of frequency. This chapter deals with a few details which are perhaps less fundamental but which, nevertheless, deserve attention. But, of course, even with this chapter we will not completely exhaust the harmonic vocabulary. The variations in detail and exceptions to the "rules" found in tonal music are too numerous to codify; in fact, it is doubtful that they ever will be codified. This complexity is one of the really fascinating aspects of tonal music, an aspect you can look forward to exploring in your further study of the literature.

THE DOMINANT WITH A SUBSTITUTED SIXTH

You may be familiar with the concept of added-note chords, such as the triad with an added sixth. Such chords were not really a standard part of the vocabulary of Western music before impressionism, but they were recognized as a possibility long before that time. For example, Jean Philippe Rameau (1683-1764), an influential French theorist and composer, considered the first chord in Example 28-1 to be a IV chord with an added sixth, although you might prefer to label it as a ii⁶₅. Whichever analysis you choose, the cadence is plagal (review p. 127).

Example 28-1.



While triads with added sixths are not characteristic of most tonal music, the dominant chord with a substituted sixth is not uncommon. In this case, the sixth above the root is substituted for the fifth, which does not appear. If you play the three cadences in Example 28-2, you will find that they have a similar effect. The first one, of course, is a familiar form of the perfect authentic cadence. Example 28-2b incorporates an escape tone that embellishes the fifth of the V chord. In Example 28-2c the a¹ appears in place of the fifth—it is a substituted sixth (V_{6th}^{subs}). You may have noticed that the V_{6th}^{subs} contains the same scale degrees as those found in a iii⁶ chord, but the function is clearly dominant. To analyze the cadence in Example 28-2c as iii⁶-I would certainly be an error. On the other hand, some theorists would label the V_{6th} as a V¹³, and that analysis is shown in parentheses.

Example 28-2.



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Example 28-3 contains an illustration of the V_{6th}^{subs} . Notice that the e^2 , the pitch that would have been the fifth of the V chord, appears immediately before the $f\sharp^2$. The V_{6th}^{subs} is usually prepared in this manner, which leads some theorists to analyze the V_{6th}^{subs} as a V chord with a metrical escape tone. Either approach is acceptable.

Example 28-3. Haydn, Symphony No. 101, IV



Example 28-4 is strikingly similar to the previous example, but it is in the minor mode. Notice again the preparation of the sixth.

Example 28-4. Schumann, "Folk Song," Op. 68, No. 9



The substituted sixth may appear in connection with the dominant triad, as in the examples above, or with the V^7 , as in Example 28-5.

Example 28-5. Schumann, Humoresque, Op. 20



In this example, notice the sharp dissonance between the substituted sixth (d^2) and the seventh of the chord (e^{b^2}) . The dissonance is usually voiced as it is here, with the sixth of the chord above the seventh.

THE DOMINANT WITH RAISED OR LOWERED FIFTH

When the fifth of a V or V⁷ is chromatically raised, the sonority that results is either an augmented triad (V⁺) or an augmented-minor seventh chord (V⁺7). This alteration is useful in that the raised fifth creates a leading tone to the third of the tonic triad. The leading-tone effect would not be present if the tonic triad were minor, and for this reason the augmented dominant is not found resolving to a minor triad. These concepts are illustrated in Example 28-6.

Example 28-6.



Most instances of V^+ and V^{+7} find the augmented dominant preceded by its diatonic form, which means that the $\sharp \hat{2}$ could also be analyzed as a chromatic passing tone. The $c\sharp^2$ in Example 28-7 is a chromatic passing tone, but at the same time it creates a V^{+7} for a duration of four eighth notes.

Example 28-7. Beethoven, Symphony No. 9, Op. 125, III (strings)



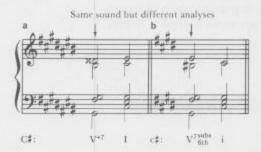
The second chord of Example 28-8 appears to be a nontertian chord: G# B# E F#. But if you play the example, you will hear that the e¹ is in actuality a d*¹, and the chord is a G#⁺⁷. This resolves to a D* triad, which is simply the enharmonic equivalent of the expected C#. The progression uses the following chords:

Example 28-8. Chopin, Nocturne Op. 48, No. 2



You might have thought of the e¹ in m. 56 as a substituted sixth because it is a m6 above the root of the V chord. In fact, the V_{6th} in c# (enharmonic with the key of db) would be spelled in just this way. But, as Example 28-9 illustrates, the raised fifth of a V⁺⁷ acts as a leading tone to 3 and resolves up by step (Ex. 28-9a), while the substituted sixth leaps down to the tonic (Ex. 28-9b).

Example 28-9.



Secondary dominants may also appear in augmented form. Most common are the V*/IV and the V*7/IV, as in Example 28-10.

Example 28-10. Haydn, Quartet Op. 9, No. 2, I



The possibility of a dominant with a chromatically lowered fifth may also have occurred to you, especially if you have had some contact with jazz and pop styles. The Fr+6 contains the same notes as a $V_{\nu 5}/V$, as illustrated in Example 28-11. However, this chord cannot be said to have been used with any degree of frequency prior to the twentieth century, except in the guise of a Fr+6. Both the $V_{\nu 5}$ and the V^{+7} belong to an important group of sonorities referred to as whole-tone chords and which are more typical of impressionism than of earlier styles.

Example 28-11.



NINTHS, ELEVENTHS, AND THIRTEENTHS

Just as superimposed thirds produce triads and seventh chords, continuation of that process yields ninth, eleventh, and thirteenth chords (which is not to say that this is the manner in which these sonorities evolved historically). These chords are shown in Example 28-12.

Example 28-12.



Interesting as these chords may be, the triad and the seventh chord were really the standard fare of music in the eighteenth and nineteenth centuries. True elevenths and thirteenths are rare before impressionism. Ninths occur throughout the tonal era, but the ninth of the chord often can be analyzed as an NCT and usually disappears before the chord resolves. The most common way to resolve the ninth is to slip down a step to double the root of the V. This is what happens in Example 28-13, where the minor-mode ninth, \mathfrak{fb}^2 , moves down by step to \mathfrak{eb}^2 , the root of the V^7 .

Example 28-13. Beethoven, Sonata Op. 2, No. 1, I



Another possibility, illustrated in Example 28-14, is to arpeggiate from the ninth of the chord down to the seventh.

Example 28-14. Beethoven, Quartet Op. 59, No. 2, III (piano reduction)



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Still, examples may be found of true ninth chords—that is, chords that maintain the quality of a ninth chord right up to the resolution, at which point the ninth resolves down by step. This is illustrated in Example 28-15, where the ninth, cb¹, resolves to bb in the next chord. The minor ninth quality is used here as mode mixture: the diatonic Vb9 in cb. Notice also the V7 in m. 193, which could be analyzed as a V^{5subs}_{6th}.

Example 28-15. Schumann, Humoresque, Op. 20



All of the examples of ninth chords cited so far have been dominant ninths. Although dominant ninths are the most commonly encountered, other ninth chords do occur. Example 28-16 contains a clear instance of a iv⁹.

Example 28-16. Schumann, "Scheherazade," Op. 68, No. 32



The symbols used in the analysis of ninth chords are not standardized. The easiest approach is to let the roman numeral reflect the triad type, with the 9 simply appended to it. Inversions of ninth chords are not as common as inversions of triads and seventh chords, Moreover, the figured bass symbols for inversions of ninth chords are too cumbersome to be practicable. A useful, if unscientific, solution is to give in parentheses the figures used for inversions of seventh chords: $V^{9}(\frac{6}{5})$, and so on. This will not work in the case of a ninth chord in fourth inversion, but the fourth inversion is very uncommon.

THE COMMON-TONE DIMINISHED SEVENTH CHORD

Most diminished seventh chords function as leading-tone sevenths of tonic or of some other chord within the tonality. While the enharmonic potential of the diminished seventh chord is occasionally exploited in enharmonic modulation, the resolution of the chord generally clarifies its function.

However, there is a diminished seventh chord usage that does not conform to the usual pattern. In this case, the diminished seventh chord progresses to a major triad or dominant seventh chord, the root of which is the same as one of the notes of the o7 chord. In Example 28-17, g2, the seventh of the a#07, is retained to become the root of the next chord. It is obvious that the agon is not a leading-tone seventh of the G6 or the G6. We refer to a diminished seventh chord used in this way as a common-tone diminished seventh (ct⁰⁷). Remember that the tone in common is the root of the major triad or dominant seventh chord.

Example 28-17.



The function of a cto7 is simply one of embellishment. A cto7 can be used to embellish any major triad or dominant seventh chord, but it is most often found progressing to I in major or V(7) in major or minor. Most often the ct⁰⁷ has a distinctly nonessential flavor, acting as a neighbor chord (Exx. 28-18a and 28-18b) or as a passing chord (Ex. 28-18c). Notice the smooth voice leading in all the parts.

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Example 28-18.



Example 28-19 illustrates the ${\rm ct}^{o7}$ -I progression interpolated between a pedal IV $_4^6$ and its resolution back to I. The reduction shows the tones belonging to the I chord as half-note heads and the others as quarter-note heads (only the accompaniment is shown). The only significant harmonic event here is the presentation of the tonic triad. The V_3^4 consists only of neighbor tones on a weak beat, while the IV $_4^6$ and ${\rm ct}^{o7}$ in combination form a double neighbor group figure in the inner voices.

Example 28-19. Mozart, Sonata K. 545, II



The ct^{07} in Example 28-20 serves as a passing chord between the tonally more significant tonic and dominant chords. The tone in common between the ct^{07} and the V_4^4 is the g^2 in the melody.

Example 28-20. Brahms, Symphony No. 1, Op. 68, I (strings)



The ct⁰⁷ that embellishes I is usually spelled as a \$ii⁰⁷ and that which embellishes V as a \$vi⁰⁷, as in Example 28-18. However, enharmonic spellings are occasionally found. In Example 28-20 Brahms spells the ct⁰⁷ embellishing V as a \$i⁰⁷ so that the viola line would read C-Bb-B\$ instead of C-A\$-B\$. In Example 28-21 he spells the ct⁰⁷ embellishing I as a \$iv⁰⁷ in order to clarify the F-Ab-F arpeggiation in the melody (instead of F-G\$\$-F).

One feature of the theme that begins in Example 28-21 is extensive use of mode mixture, and the Ab introduces this technique more clearly than G# would have. This marvelous theme should be studied in its entirety (mm. 1-15), using a recording and a full score. You will discover not only mode mixture, but additional ct⁰⁷ chords, other altered chords, and polymeter (the aural effect of two or more different meters occurring at the same time). Motivic relationships are also of interest. For example, compare the melody in mm. 1-3 with the bass in mm. 3-5. Incidentally, the inner voices of this example have been included only to clarify the harmonies—they do not indicate Brahms's actual voice leading, which is too complicated for a piano reduction.

Example 28-21. Brahms, Symphony No. 3, Op. 90, 1 (simplified texture)



You may have noticed that the ct⁰⁷ that embellishes I is enharmonic with the vii⁰⁷/V. This is especially clear in the preceding example, where the ct⁰⁷ is actually spelled as a vii⁰⁷/V (b⁰⁷). In most cases you will have no trouble telling a ct⁰⁷ of I from a vii⁰⁷/V—only if the chord that follows is a V or a I⁶ should the diminished seventh chord be interpreted as a vii⁰⁷/V. In Example 28-22 Schumann spells the chord on the second beat of m. 15 as a d⁴⁰⁷, a ct⁰⁷ of I, but its resolution to I⁶/₂-V⁹ requires an analysis as a vii⁰⁷/V. The texture of this example is quite complex and features imitation between the soprano and alto parts.

Example 28-22. Schumann, "Lento espressivo," Op. 68, No. 21



SIMULTANEITIES

We know that some chords in a passage have more of an embellishing function than other chords do. This was discussed in Chapter 13 and also in relationship to passing six-four chords, parallel sixth chords, and others. Sometimes the traditional label for an embellishing chord (that is, V, ii, and

so on) seems particularly meaningless, and we might use the term simultaneity for such a sonority to distinguish it from a traditional chord. A frequently encountered example is the diminished seventh sonority fulfilling a passing function.

Consider Example 28-23. It employs a tonic pedal throughout. The chord roots and sonority types are these:

But the real "chords" in this progression are

The diminished seventh chords are simultaneities—traditional sonorities used in nontraditional ways. Here the chromatically descending diminished seventh sonorities (some enharmonically spelled) serve not as vii⁹⁷ or ct⁹⁷ chords but as passing sonorities connecting the I to the ii⁹⁷. Roman numerals would not be appropriate for the diminished seventh sonorities.

Example 28-23. Chopin, Nocturne Op. 27, No. 2





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Example 28-24 is more complicated, and you should play through it several times before reading further. The phrase is in g minor, and it consists entirely of traditional sonorities. The NCTs, if there are any, are difficult to identify. The roots of the sonorities are labeled, with alternative analyses shown in two cases.

Example 28-24. Schumann, "Das verlassne Mägdelein," Op. 64, No. 2



Two of the sonorities in this example are meaningless in the g minor context in which they occur: the Bom in m. 2 and the It+6 over the color in m. 4. If we assume that these are simultaneities fulfilling a passing function, the phrase begins to make more sense. Now the analysis would be as follows:

Now we can hear the phrase in two segments, each ending with a vii⁰⁷-i progression, the first one being a weaker progression because the i chord is in six-four position. The only oddity in the phrase is the IV⁷, which usually comes about through ascending melodic minor. Here it is caused by descending chromaticism in the alto line. An interesting detail of the passage is the imitation of the alto and bass in mm. 1-2 by the soprano and alto in mm. 3-4.

COLORISTIC CHORD SUCCESSIONS

Another way that a fundamental chord progression may be embellished is through the use of unexpected root movements to chords foreign to the key. Example 28-25 consists of an enormous I-V7-I final cadence in C major, with the approach to the V7 dramatized by a colorful series of unexpected chords. They do not seem to imply any tonicization or to function in a traditional sense in any key. In the analysis we simply indicate the root and sonority type of each chord.

Example 28-25. Liszt, Orpheus



Coloristic successions often involve chromatic mediant relationships. Two triads are said to exhibit a chromatic mediant relationship if they are both major or both minor and their roots are a third apart. In Example 28-25 the C to A and E to F# relationships are both chromatic mediants.

SUMMARY

This chapter has been concerned with the following six topics:

- The dominant with a substituted sixth. This is a V or V⁷ chord in which the sixth above the root (3) appears instead of the fifth (2). The sixth is usually approached by ascending step and left by descending leap: 2-3-1.
- 2. The dominant with raised or lowered fifth. Augmented dominants (V⁺ and V⁺⁷) are not uncommon in the major mode. The raised fifth (#2) leads to the third of the I chord. Secondary dominants may also be augmented. The lowered fifth is rarely found before the twentieth century.
- Ninth, eleventh, and thirteenth chords. Of these, only the ninth chord occurs with any frequency before the twentieth century. Most often the ninth of the chord disappears before the chord resolves. Otherwise, it resolves down by step.
- 4. The common-tone diminished seventh chord. This chord has a tone in common with the root of the chord it embellishes. It usually embellishes either I (in which case it will probably be spelled as a #ii⁰⁷) or V (spelled as a #vi⁰⁷). Enharmonic spellings do occur.
- Simultaneities, This term is sometimes applied to traditional sonorities (diminished seventh chords, for example) handled in a nontraditional fashion. Roman numerals are inappropriate for simultaneities.
- Coloristic chord successions. This refers to the unexpected use of chords foreign to the key. We do not include here, of course, an unexpected secondary dominant, or a Neapolitan, for example.

SELF-TEST 28-1

A. In each exercise below, analyze the given chord. Then notate the specified chord in such a way that it leads smoothly into the given chord with acceptable voice leading.



- B. Analysis. Throughout this section highlight (using arrows, and so on) any occurrences of the chords discussed in this chapter.
 - Label chords and NCTs, analyzing in Bb throughout. Two simple means of extending a musical idea are repetition and sequence: show where they occur in this example.

Beethoven, "Adelaide," Op. 46



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2. This excerpt is in E throughout. What bass notes are implied in the second half of m. 90 and m. 94? The chord in mm. 96-97 appears to be unrelated to the chord in m. 98. Can you think of a better explanation? Label all chords.

Schumann, "Aus alten Märchen," Op. 48, No. 15





3. Label the chords in this excerpt, which modulates from E to A. The clarinets are in A and the horns are in E, but the harmonic analysis can be carried out by studying only the nontransposing instruments.

Beethoven, Symphony No. 7, Op. 92, II





4. This example is one of the thirteen short pieces that comprise Schumann's Kinder-szenen (Scenes of Childhood). While it could be analyzed entirely in F, your analysis should somehow reflect the strong tonicizations of C, g, and d. How can the reharmonization heard in the last three measures be related to the rest of the piece? Label chords and NCTs throughout, except for measures that are exactly the same as earlier measures.

Schumann, "Träumerei," Op. 15, No. 7





5. This famous song has been the subject of several contradictory analyses. Phrase 1 (mm. 1-4) offers no problems; label the chords with roman numerals. The second chord in m. 4 is a simultaneity, as are most of the chords in phrase 2 (mm. 5-12). Label the roots of any simultaneities in mm. 5-8. Most of the seventh chords are passing simultaneities rather than true chords. How can you tell? What interval used in parallel motion forms the basis for mm. 5-8? Label the chords in mm. 9-12.

Schumann, "Ich grolle nicht," Op. 48, No. 7





EXERCISE 28-1. See Workbook.

LATE ROMANTICISM AND THE TWENTIETH CENTURY



TONAL HARMONY IN THE LATE NINETEENTH CENTURY

INTRODUCTION

The forces that ultimately led to the breakdown of the tonal system may be viewed as the logical extension of the direction in which music had been developing since the beginning of the nineteenth century. In attempting to identify which characteristics of the transitional period eventually opened the door onto the new horizons of the twentieth century, we would certainly note the increasing prevalence of contrapuntal writing, the systematic blurring of essential harmonies by means of longer, stronger nonharmonic tones, the more rapid rate of change from one transient tonality to another, the tendency to avoid dominant-to-tonic cadences for longer periods of time, and frequently, the total avoidance of any clear definition of a principal key center until well along into the work. We might also note that melody was gradually released from its traditional harmonic associations, with the result that melodic and harmonic successions began to exist in their own coloristic right,

Consider Example 29-1.

Example 29-1. Dvořák, Symphony Op. 95 (From the New World), II (piano reduction)



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The G major chord that follows the tonic of Db totally defies any attempt at functional analysis. The Bb chord in the second measure might be heard as V/ii, but its subsequent movement to IV seems to refute that implication. The final authentic cadence in Db, which closes the movement, is satisfying; yet it seems to emerge from a "nonprogression."

The period in which such practices became most pervasive lies roughly within the last two decades of the nineteenth century and the first two of the twentieth. Often referred to as the postromantic era, it is an elusive and intriguing epoch in many ways. Surely the trends that it spawned tended to develop in distinctly different directions as the twentieth century unfolded.

Of course, not all practices of the postromantic era were revolutionary. We have already encountered passages in the music of Mozart and Beethoven, even Bach, that defy tonal analysis, either written or aural. By the close of the nineteenth century, however, we find that this description applies to the greater part of the literature, as opposed to representing an occasional anachronistic curiosity.

Other developments that should be mentioned in passing include the expansion and modification of many of the accepted large forms, as seen in the symphonies of Bruckner and Mahler, the monumental music dramas of Wagner, and the tone poems of composers such as Liszt and Sibelius. When we are dealing with the concept of standard form, to be sure, we must note that the life cycle of any new musical venture is typically characterized by its introduction, gradual acceptance, standardization, and shortly thereafter, rapid fall into disfavor through excessive use. Nowhere in Western musical history, however, may this process be observed more clearly than in the brief but turbulent span that preceded the dawn of the twentieth century.

Very much in evidence is an increasing emphasis on the dramatic and programmatic aspects of concert music. This trend may have inspired a spirit of nationalism on the part of numerous composers. Most notable among them are the so-called Russian five: Cui, Balakirev, Borodin, Moussorgsky, and Rimsky-Korsakov. Much of their music is rich in historical allusion as well as in references to Russian folk legends. These five were by no means an isolated geographic phenomenon; other composers who drew upon the heritage of their native lands include Edward McDowell (United States), Sir Edward Elgar (England), Jan Sibelius (Finland), Edward Grieg (Norway), and Antonin Dvořák (Bohemia), to name but a few. This reawakening of national awareness proved to be profoundly significant in its influence upon the ensuing diversity of music style. While it is not within the scope of this brief chapter for us to deal with the aspects of structural evolution and nationalism cited above, it is nonetheless useful to recall that they were taking place more or less simultaneously with the technical details we will discuss here.

COUNTERPOINT

While we will treat various elements of the postromantic style separately, you will notice that they are in a sense inseparable. Excessive melodic chromaticism will unavoidably affect harmonic movement; irregular resolutions must inevitably influence linear movement. Perhaps the dominant characteristic of this music is the prevalence of contrapuntal manipulation, particularly of supporting voices. Since these voices tend to be chromatically inflected and to move independently of the principal voice—if there is a principal voice—the individual harmonies and hence, any clear sense of harmonic progression are blurred.

Richard Wagner is generally considered to have been the most influential single figure in the late romantic era, particularly in the sense that his compositional procedures seem to provide the most obvious link between the mid-nineteenth century and the ultimate development of the twelve-tone system, to be discussed in Chapter 30.

The Prelude to *Tristan und Isolde* illustrates how moving lines may serve to obscure, or even misrepresent, vertical harmonies.

Example 29-2. Wagner, Tristan und Isolde, Prelude (piano reduction)



The sonority found on the first beat of m. 2 suggests an F half-diminished seventh chord (enharmonically spelled). Yet before this chord is allowed to function in any way, the G# resolves to A, creating a Fr+6 chord that seems to suggest the key of A. The ultimate conclusion of the phrase in m. 3 confirms the tonal center of A by means of its dominant; we are, however, uncertain whether to expect a major or minor tonic. The voice leading in this example is worthy of mention. Notice the following points:

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- 1. The bass line of mm. 2-3 echoes the alto of m. 1.
- The soprano line beginning at m. 2 represents an exact mirror of the alto in mm. 1-3.
- 3. The tenor line mirrors, in reverse, the first and last pitches of the soprano line.

The Prelude then continues as follows (Ex. 29-3).

Example 29-3. Wagner, Tristan und Isolde, Prelude (piano reduction)





Although the opening leap of B to G\$ appears to confirm A as tonal center, it serves instead as the link to a sequential passage that leads first to a half cadence in the key of C, and finally, to a reiterated half cadence in E. Of future significance here is the fact that we find these keys (A, C, and E) subsequently serving as important tonal regions throughout the Prelude. It should also be noted that the exceedingly slow tempo at which this piece is to be performed tends to further obscure the sense of harmonic direction.

Contrapuntal interplay between voices may also serve to prolong a single harmony. Let us examine the opening eight measures of Brahms's Symphony No. 1. The violins, along with the cellos, present the principal theme, shown below (Ex. 29-4).

Example 29-4. Brahms, Symphony No. 1, Op. 68, I (first violins)



Notice the syncopated, irregular character of the melodic line. Notice also the use of both natural and raised submediant, leading to the subtonic pitch of Bb, which is used exclusively in place of the leading tone. Besides B\$, the other chromatic pitches not heard in this ascending scale are those most typically associated with tonicization, E and F\$ (the leading tones to iv and V respectively). The E finally appears in m. 8, followed immediately by F\$, leading to V.

Example 29-5 shows a reduction of the voice leading in this passage. Keep in mind that the inner voices are doubled in various octaves by the entire woodwind choir, as well as by the violas, creating unusually powerful two-voiced activity.

Example 29-5. Brahms, Symphony No. 1, Op. 68, I (reduction)





The first vertical sonority following the opening octave is a C⁷ chord that avoids the confirmation of either major or minor. The texture is that of a duet between the principal melody and the accompanying voices, which move in parallel thirds, all above a tonic pedal. The syncopation of the melody and its irregular treatment of tendency tones render any attempt at roman-numeral analysis meaningless and, in fact, preclude any sense of forward harmonic motion. Yet the inexorable logic of the contrary motion between the two lines, pitted against the insistence of the tonic pedal, creates a sense of drama and mounting tension that could hardly be heightened by harmonic means.

SEQUENCE

We have observed the manner in which sequential treatment serves to facilitate movement among mediant-related keys in Example 29-3. The device of sequence proves equally serviceable in homophonic passages,* particularly in the harmonization of unwieldy melodies. In Example 29-6 we find a melody, consisting of a chromatic scale, that is used to embellish the progression V-I in Bb major.

Example 29-6. Tchaikovsky, Nutcracker Suite, Op. 71a, Overture (piano reduction)



Although we have pointed out similar examples of passing harmonies in earlier examples, you will notice that this succession of chord roots (indicated by pop symbols) is strictly parallel. Yet the contrary motion inherent in the sequence pattern creates a sense of intense harmonic activity. Yet another example in which sequential activity—in this case, a more extended pattern—serves to "legitimize" nontraditional relationships may be seen in the passage from Scheherazade, a tone poem by Rimsky-Korsakov.

^{*}Passages in which a single melodic line (as opposed to the juxtaposition of multiple melodies found in contrapuntal writing) is harmonized, either with block chords, or by means of a more elaborate accompaniment.

Example 29-7. Rimsky-Korsakov, Scheherazade (piano reduction)



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This passage, found near the beginning of the work, establishes the key of E major. The excerpt quoted here opens with C# major harmony, suggesting V/ii. The sequence that begins in m. 3 moves through a series of tonicizations a whole step apart, from C# to A, and ultimately leads to a half cadence

on B. Of interest is the second chord of the sequence, which vaguely suggests an augmented sixth. This sonority, which embellishes the third chord of the pattern (dominant seventh of the following tonal area) also shares a common tritone with it. The smoothness of the sequential movement renders convincing the somewhat tenuous relationship between the series of chords thus tonicized (C\$-Eb-F-G-A) and the overall tonality of E major.

Perhaps the quintessence of a chromatically saturated sequential succession is the *omnibus*, a coloristic series of chords used to harmonize nonfunctional bass movement. For example, in the music of Liszt and Chopin we frequently encounter this phenomenon:



Although it would perhaps be possible to analyze the chords interpolated between root position V⁷ and V⁶₅ as tending to tonicize c minor (Ger. 6 - i⁶₄ - Ger. 6), the bravura tempo at which such passages are normally performed will more likely suggest extended dominant seventh harmony with chromatic passing tones in bass and soprano. The omnibus may also serve to harmonize a descending bass line as shown in Example 29-8.

Example 29-8. Omnibus



You will notice that only one voice at a time is moving in contrary motion to the bass, and that this function is passed back and forth between soprano, alto, and tenor. Notice too that the minor triads found as every third chord bear a mediant relationship to one another.

SHIFTING KEYS

The examples we have looked at thus far, including the omnibus, bear one important resemblance to one another: they can all, if broken down into sufficiently small components, be analyzed in terms of functional relationships. The descending form of the omnibus, for example, responds believably to the following analysis:

At any point we might logically discontinue the sequence by means of a functional progression from any of its members to tonic harmony. Increasingly, however, late nineteenth-century music features chord relationships that do not correspond to traditional root movement. Look, for example, at the following music by Liszt.

Example 29-9. Liszt, Polonaise No. 2



The key of a minor, which has until now been clearly established (typically, as we have noted before, by means of a tonic chord embellished through nonessential +6 harmony), is suddenly interrupted by the appearance of f minor. While the ear can easily accommodate the pitches F and C in a minor, the flatted tonic is a jarring occurrence, and it instantly raises doubts about the solidity of the previous key center, without suggesting a new one. The subsequent movement to D (which, in retrospect, labels the f minor chord as a V^{subs}_{6th}) is quickly eradicated by the return of a minor.

The relationship of Db to a minor is an interesting one; if we respell the Db as C# (since the ear will indeed process these chords as being related by 3rd rather than by °4) we note a double chromatic mediant relationship. Examining a reduction of this chord succession, we may summarize the relationship as follows: two triads of contrasting quality (minor to major, or vice versa) whose roots are located a 3rd apart.



Occasionally, as in this example, a M3 may be respelled as a °4 for the sake of convenience. The movement between them will, of necessity, involve two chromatic inflections, as opposed to the previously encountered chromatic mediant (one chromatic inflection and one common tone, triads matching in quality) or the diatonic mediant (no chromatic inflections, two common tones, triads contrasting in quality). The possibilities for double chromatic mediant relationship to A are as follows:

a minor to C# major or F# major

A major to c minor or f minor

The chief significance of this chord movement lies in the incompatibility of the two sonorities, in terms of a single diatonic key, and thus in the assurance of a startling tonal shift,

The next example, by Wagner, a modulation from Gb to F (although, as is typical of the music of Wagner, the F never appears in the form of a consonant triad), shows a key shift accomplished essentially by linear means. The tonality changes from m. 5 to m. 6, when the F half-diminished seventh, representing vii⁶⁷, is chromatically inflected to become a B half-diminished seventh, suggesting vii⁶⁷/V in the new key. Note the tritone root relationship that exists between these two chords; note, too, the smoothness of the contrapuntal motion. Once again the linear distraction provided by the moving inner parts, with their pervasive non-chord tones, continues to propel the harmonic motion forward, though at the same time defying the listener's prediction of the eventual tonal outcome.

Example 29-10. Wagner, Tristan und Isolde, Act II, Scene II (piano-vocal score)



TREATMENT OF DOMINANT HARMONY

Certainly the single structural bulwark upon which the traditional tonal system rests is most aptly represented by the inviolability of the V-I progression. Rudolph Reti summed up this concept rather succinctly when he observed, in *Tonality in Modern Music:**

In fact the scheme I - x - V - I symbolizes, though naturally in a very summarizing way, the harmonic course of any composition from the Classical period. This x, usually appearing as a progression of chords, as a whole series, constitutes, as it were, the actual "music" within the scheme, which through the annexed formula V-I, is made into a unit, a group, or even a whole piece.

Inevitably, then, when this traditional relationship is tampered with, the ensuing musical result, despite surface consonance, represents a significant historical digression.

In the following example a chain of major-minor seventh chords, each suggesting a dominant function but forced to resolve deceptively, creates a strikingly parallel, and hence nontonal, effect.

Example 29-11. Brahms, Symphony No. 4, Op. 98, IV (piano reduction)



Brahms has heightened the natural ambiguity of this brief passage still further by means of alternating registral displacement. In the following passage by Fauré, who is frequently mentioned as the most obvious predecessor of Debussy, we note dominant seventh sonorities, moving coloristically in parallel motion with no pretense of harmonic function, arriving finally at a brief but satisfying tonicization of Eb (Ex. 29-12).

*Rudolph Reti, Tonality in Modern Music (New York: Collier Books, 1962), p. 28. (Originally published as Tonality-Atonality-Pantonality.) Used by permission of Hutchinson Publishing Group Limited, London, England.

Example 29-12. Fauré, "L'hiver a cessé," Op. 61, No. 9



We have seen a tendency on the part of postromantic composers to delay, or obscure, or both, the resolution of dominant to tonic. This process may be observed in the opening measures of Brahms's Violin Sonata in D minor (Ex. 29-13):

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Example 29-13. Brahms, Violin Sonata No. 3, Op. 108, I





Although the movement opens with d minor harmony, the first actual harmonic motion, in m. 3, leads to the mediant, suggesting relative major, while mm. 7 and 8 strongly suggest subtonic (C), though perhaps in a V/III function. The first rhythmically significant cadence, in m. 11, falls on dominant harmony. After extended chromatic hovering about V, the key shifts almost imperceptibly (by means of sequence) to a minor, leading to a cadence on a. Though we might logically hear the A major chord of the cadence as a preparation for a return to tonic, our expectations are thwarted, as we are hurried off, if only briefly, to F and the beginning of a transition section that ultimately establishes the relative major as the second key area-but without a single authentic cadence having been heard in the original key.

EXPANDED TONALITY

The process of avoiding confirmation of tonic may sometimes be carried so far that the listener is never entirely sure of the primary tonal center of the piece. Examine Example 29-14:

Example 29-14. Wolf, "Herr, was trägt der Boden"



Actually, the opening measures might lead us to expect eventual resolution to b minor as tonic, although the key signature contradicts this. However m. 2 negates the leading tone of A#, and m. 3 with its g minor sonority all but destroys any previous expectations. In mm. 4 (minor v?), 5 (iv6), and 6 (V7) we are brought seemingly back to b minor, only to be abruptly jarred by the d minor interruption of m. 7. (Note the double chromatic mediant root relationship between D minor and the preceding F#7 chord.) It is not until the final measures of the piece (Ex. 29-15) that E (albeit E major) is at last allowed to serve as tonal center of gravity.

Example 29-15. Wolf, "Herr, was trägt der Boden"



Even here we note a certain ambiguity suggested by the tonicization of the Neapolitan (m. 25), the harmonic enigma of the A#/Bb, and the final attempt to hold back tonic by means of a deceptive cadence in m. 26. Still, the very functional root movement leading to the end (C#-F#-B-E) seems to compensate for the unexpectedness of this tonal goal.

Our final nineteenth-century example, by Mahler, also serves to illustrate the principle of what has aptly been described as nonconcentric tonality (Ex. 29-16).

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Example 29-16. Mahler, Kindertotenlieder, No. 2



The opening measures suggest g minor, despite the key signature, which more logically would point to c minor. It is worthy of mention, in light of our preceding comments regarding the traditional inviolability of the dominant, that in both this example and the preceding one by Wolf, the "wrong key" heard at the outset is, in fact, serving as a minor dominant for what ultimately proves to be the intended tonic. Let us note too that the tonicizing process for g minor takes place by means of Neapolitan and augmented sixth sonorities, which are much prized in postromantic music, since they provide linear support with a minimum of functional root movement, Interestingly, at the point at which the music seems to move away from tonic toward the expected dominant, the tonality appears to be shifting toward Eb (mm. 10-12).

Mahler's systematic manipulation of tendency tones within the established key is particularly crafty. As you play through the example, note the G natural in m. 13 (which our ear perceives as 3 in Eb, moving on to Ab, its expected destination). In the meantime, however, the bass Eb, which our ear has interpreted as a tonic passing tone headed for the leading tone of D natural, moves instead to Db, and suddenly we find ourselves expecting a resolution to Gb major, the soprano Ga having been transformed into a leading tone to the supertonic. Yet before this is allowed to happen, our expectations are once again thwarted as the Db7 in m. 14 is treated unexpectedly as an augmented sixth chord and drops to C major, while the passing tone A2, seeming to drive upward, resigns itself to function as a suspended submediant in C.

SUMMARY

It is possible to identify a number of developments that took place during the approximately forty-year period comprising the postromantic age. For one, we note a resurgence of interest in contrapuntal manipulation, particularly insofar as it serves to obscure harmonic rhythm and tonality; the sequence was increasingly used as a means of creating relationships between seemingly disparate musical elements or, in one of its more traditional functions, as a means of prolonging a single tonality. Composers began to lean toward less conventional key relationships, particularly ones that confound functional analysis. The means for establishing a key became coloristic rather than functional. Irregular

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treatment of the dominant harmony and a lessening of control by any single key as an organizing factor also represent a significant departure from earlier tonal styles.

As we have mentioned, an investigation of larger formal practices is not, unfortunately, within the scope of this brief chapter. If you wish to gain a more accurate understanding of this transitional period, you will need to study large musical structures; you will also need to gain some familiarity with the striking political, sociological, and philosophical movements that characterized the era.

EXERCISE 29-1. See Workbook.

AN INTRODUCTION TO TWENTIETH-CENTURY PRACTICES

INTRODUCTION

As the traditional tonal system was being stretched to, and even beyond, its furthermost limits, composers became aware of the growing need for alternative means of musical organization. Elements that seemed to lend themselves to modification were scale, chord structure, harmonic succession, rhythm and meter, and overall musical texture. The early experiments that took place seemed to lead along two somewhat different paths: on the one hand, an extension of the principles of ultrachromaticism, and on the other, a reaction against chromatic excess.

Debussy, in particular, took the second path. He is considered by many to have made some of the most significant contributions to the evolution of early twentieth-century musical thinking. Perhaps one of the most fascinating aspects of Debussy's music, particularly the early works, lies in its relatively traditional sound. For example, notice the clear suggestion of Gb major in Example 30-1.

Example 30-1. Debussy, "La fille aux cheveux de lin," from *Preludes*, Book I



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But notice, too, the nontraditional procedures he employs:

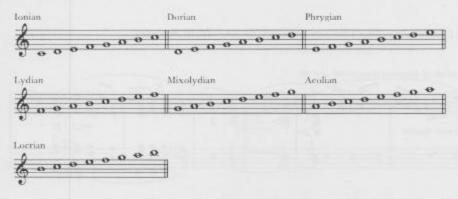
- The opening measures outline an ep minor seventh chord, whose function is far from obvious.
- The first cadence leading to tonic is plagal and thus avoids functional use of the leading tone.
- The progression beginning in m. 5, with its predominance of mediant relationships, serves to render the Gb tonic still more elusive.

In general, the most revealing aspects of twentieth-century music may be discovered through an examination of the treatment of tonality: does the piece seem to have a tonal center or centers? If so, how is tonality accomplished? If not, how is it avoided? The answers to these questions will do a great deal to shed light upon a composer's style and musical inclinations.

SCALES

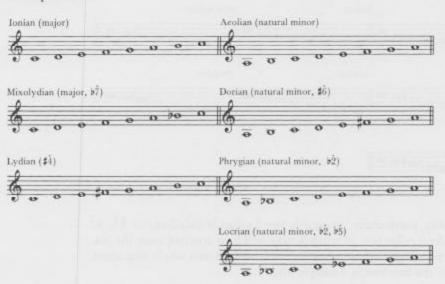
One reaction to the chromatic saturation of the late nineteenth century revealed itself in a renewed interest in the church modes, which are given below. The simplest way to represent each of the modes is by using the pitches of the C major scale, but with a pitch other than C serving as tonic or final for each mode (Ex. 30-2).

Example 30-2.



If we compare the modes directly to major and minor scales (Ex. 30-3), we find that the Ionian and Aeolian modes are identical to the major and natural minor scales, respectively, and that the remaining modes (except Locrian) may be likened either to a major scale or to a natural minor scale with one alteration.

Example 30-3.



The Locrian mode, which requires two accidentals compared to minor and which lacks a true dominant, occurs less frequently as a basis for musical composition.

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The modes may also be arranged as shown below, in decreasing relative order of "brightness," that is, according to the number of major or augmented intervals above the final. For comparison each mode in Example 30-4 is built on C.

Example 30-4.



A scale Debussy particularly favored is the Lydian-Mixolydian, or $\sharp \hat{4}$, $\flat \hat{7}$ scale. This hybrid collection of pitches may well have resulted from the juxtaposition of two major-minor seventh chords with roots a whole step apart, as indicated by the brackets in Example 30-5.

Example 30-5.



You will notice, given the presence of both Bb and F#, that it would be impossible to realize this scalar pattern using only the white keys of the piano. Just as each of the diatonic modes possesses unique color characteristics, this scale may be made to sound quite different with different pitches serving as "tonic." For example, beginning on D will result in a major scale with a b6 and b7. Likewise, beginning on A will yield a Phrygian/Dorian pattern (A minor with b2 and \$6). When G is used, an ascending melodic minor scale is created.

When we start this scale on the note Bb, the resulting pattern begins with five pitches in whole tone relationship to one another. For this reason, you may occasionally see the designation 4+1, indicating that this type of scale may be arranged so as to consist of four whole steps, separated by a half step from the one remaining whole step, as follows:

$$B \rightarrow C \rightarrow D \rightarrow E \rightarrow F + G \rightarrow A \rightarrow B \rightarrow$$

Accordingly, the white key scale could be designated 3+2 when arranged as follows:

$$F \cdot G \cdot A \cdot B \cdot C \cdot D \cdot E \cdot F$$

Obviously the nonspecific nature of these labels would be useful only to distinguish between the two scalar patterns used, say, in a passage which contains no clear tonal center.

Example 30-6 shows this scale resulting from the canonic mirroring of two voices,

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Example 30-6. Bartók, "Subject and Reflection," Mikrokosmos No. 141



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The pentatonic, or five-note, scale has played a significant role in music, particularly non-Western music, for centuries. Although the term pentatonic literally denotes any collection of five pitches, the two forms of the scale shown in Example 30-7 tend to be encountered the most frequently in the literature.

Example 30-7.



There are no half steps or tritones in the diatonic pentatonic, which may be likened to the pattern of the black keys on the piano. Any one of its five pitches may be made to serve as tonic; however, the effect of the scale is

likely to be harmonically static, particularly if its use is prolonged. For this reason, a composer will seldom use the pentatonic scale as the basis for an entire composition.

Debussy's use of the diatonic pentatonic scale is illustrated in Example 30-8.

Example 30-8. Debussy, "Nuages," from Nocturnes (piano reduction)



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The pentatonic tune centers around F# and is harmonized by d# minor and G# major sonorities. To the traditional ear, this might possibly suggest ii-V in C# major, or perhaps a D# Dorian key center. At no point in the piece, however, is either C# or D# permitted to function decisively as tonic.

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The pitch collections we have discussed so far bear a clear resemblance to scales or fragments of scales associated with the diatonic system. Composers have also, however, made extensive use of artificial or synthetic scales. One of the most prominent of these, the whole-tone scale, composed entirely of major 2nds, was also a favorite of Debussy's. This scale is used in Example 30-9.

Example 30-9. Debussy, "Voiles," from Preludes, Book I



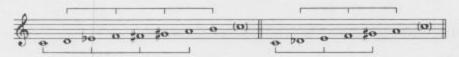
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Like the pentatonic scale, the whole-tone scale possesses several structural limitations, since it contains basically only three intervals: the major 2nd, the major 3rd, and the tritone (along with their inversions). Its symmetry and its total lack of perfect intervals (and hence of major or minor triads) bestows upon it an elusive, tonally ambiguous quality that has proved attractive to many composers. The vertical sonorities that may result from whole-

tone simultaneities are often referred to as whole-tone chords. (The French augmented sixth chord, though used in tonal contexts, may be structurally derived from the whole tone scale.)

The available variety of synthetic scales is, obviously, limited only by the composer's imagination. We shall mention here only two additional ones that are interesting because of their symmetrical structure: the *octatonic* or *diminished* scale, derived from the superimposition of two diminished seventh chords at the interval of a half or whole step, and the *half step-minor 3rd scale*, derived from the juxtaposition of two augmented triads at the interval of the half step.

Example 30-10.



The octatonic scale can, in some instances, suggest modal combinations, although it is infrequently used for such a purpose.

The dodecaphonic, or twelve-note, scale may serve as the basis of a composition that suggests a tonal center, although its use will be strictly nonfunctional. The term dodecaphonic is used in place of its seemingly synonymous counterpart, chromatic, so as to avoid any implication of functional tendency tones (the significance of #6 versus 57, and so on). Example 30-11 illustrates the use of this scale.

Example 30-11. Kennan, Prelude No. 1



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The opening four measures of this Prelude make use of all twelve pitch classes, yet through the bass position and reiteration of the note F, we are made aware of its function as tonal center.

CHORD STRUCTURE

An obvious extension of the postromantic tradition of tertian harmony is found in the increased use of ninth, eleventh, and thirteenth chords (tall chords) on the part of some composers. In the twentieth century, however, we are far more likely to find these chords operating as independent entities not bound by the traditional need for resolution. This may be seen in Example 30-12.

Example 30-12. Ravel, "Rigaudon," from Le Tombeau de Couperin

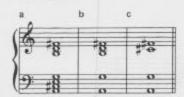


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Notice how the tall sonorities in mm. 3-6 result from the scalewise motion of the bass line,

Frequently, in the interests of lightening up the texture and achieving greater flexibility, a composer may omit some components of a tall chord, such as the fifth or the eleventh. Depending on the context, this omission may tend to alter the listener's perception of the basic chord structure. Play the three chords of Example 30-13.

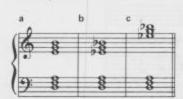
Example 30-13.



Example 30-13a is clearly a thirteenth chord. If we interpret the root A as being a dominant, we can see that all pitches of the D major scale are being sounded. This adds a certain heaviness to the sonority, which a composer might prefer to avoid. The omission of the third and fifth of the chord, as shown in Example 30-13b, does little to alter our perception of the sonority. In Example 30-13c, however, when we systematically omit the fifth, ninth, and eleventh, we might interpret the sonority as a V the fifth, or we might even hear the F\$ as a nonharmonic tone. The "correct" interpretation is obviously dependent not only on the previous musical experience that the listener brings to it, but also on the context in which the chord occurs. For example, a popular song arrangement that features almost exclusively tall tertian sonorities will logically suggest analyzing such a chord as a thirteenth chord.

Yet another extended tertian harmony is the *polychord*—superimposed triads—several versions of which are shown in Example 30-14.

Example 30-14.



In Example 30-14a the diatonic relationship of the pitches might well suggest a chord of the thirteenth. Example 30-14b might still be perceived as a d minor ninth chord with upper extensions, but the chromatic inflection of the upper triad is far more likely to suggest two independent triads with their roots a m9 apart. This effect is greatly enhanced by the separation occurring in Example 30-14c between the two sets of pitches. Play Example 30-15, which is polychordal.

Example 30-15. Schuman, Three-Score Set, No. 2



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The independent movement of two chord streams contributes to the impression of two independent harmonic lines, despite the obvious rhythmic homogeneity of the passage. At the same time, we perceive no clear tonality, as opposed to two distinct key centers. When several key centers are heard at the same time—which occurs considerably less frequently than polychordality—we refer to bitonality or polytonality. In order for the listener to perceive duality of key, it is necessary for the harmonic motion of each key to be relatively uncomplicated and very diatonic. Bitonality is illustrated in Example 30-16.

Example 30-16. Bartók, "Playsong," Mikrokosmos No. 105



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While we may theorize about the possibility of three or more independent and simultaneous tonal centers, as suggested by the term polytonality, we would nonetheless be hard pressed to locate examples of literature in which this tonal multiplicity is perceptible at the aural level.

Another modification of the traditional tertian system of chord construction may be found in the use of the added-note chord, as shown in Example 30-17.

Example 30-17. Grieg, "Wedding Day at Troldhaugen," Op. 65, No. 6



The circled chord in this preceding example would according to traditional analysis be interpreted as a b minor seventh in first inversion. In the context of the extremely static D major harmony, however, especially with the doubling of the A, we find the ear being forced to acknowledge D as chord root; B thus becomes an added sixth. The added-note chord will frequently feature either a second (or ninth) or fourth above the chord root. The latter is particularly likely to occur in jazz arrangements.

It may well have been the intervallic "accidents" occurring as the result of tall stacks of thirds that suggested to composers the possibility of experimenting with other intervals for constructing chords. The P5 and its inversion, the P4, seem particularly well suited to avoiding any commitment to traditional major or minor implications. Example 30-18 illustrates the use of chords built in 5ths.

Example 30-18. Debussy, "La Cathédrale engloutie," from Preludes, Book I



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Except for the moving bass line, the pitches used adhere strictly to the diatonic pentatonic scale (G-A-B-D-E). If we view the pentatonic scale in terms of its derivation from stacked 5ths (G-D-A-E-B), this interdependence of scale and chords seems almost inevitable. An example of predominantly quartal harmony (based on fourths) may be observed in the following passage (Ex. 30-19).

Example 30-19. Hindemith, Piano Sonata No. 2, I



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Notice how the P4 is used not only as an accompanying sonority in this passage but also as a structurally significant melodic interval. The 4th, more than the 5th, lends a restless, tonally indeterminate quality to a passage of music.

The use of 2nds as a method of chord construction also proved attractive to many composers. Example 30-20 illustrates Bartók's use of secundal harmony,

Example 30-20. Bartók, "Free Variations," Mikrokosmos No. 140



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Any collection of three or more pitches in secundal relationship may correctly be referred to as a *tone cluster*. The term was coined by the American composer Henry Cowell, whose early experiments called for pianists to play certain passages with fists, palms, and, frequently, the entire forearm. The concept of cluster chords, especially when used in conjunction with the rich timbral palette of an orchestra or chamber group, has continued to prove extremely useful for composers in the latter half of the twentieth century and will be further explored later in this chapter.

PARALLELISM

You may have noticed by now that the treatment of texture plays a significant role in our perception of twentieth-century music. The instrumental timbre, the structure of the chords, the doublings, the vertical spacing, the melodic construction, and the method of movement from one musical event to another—all of these aspects contribute significantly to our impression of the piece as having a tonal center or not.

One of the earliest indications of a break with traditional procedures of harmonic progression was the use of *parallelism*. In some forms, of course, parallelism has been known before the twentieth century; you have already been exposed to parallel sixth chords (Ex. 30-21).

Example 30-21.



Even in this diatonic, triadic progression, the ear experiences at least a brief confusion in the space between the beginning and the ending tonic chords, due to the sliding effect produced by parallel movement between the outer voices. Even more challenging to the ear is Debussy's use of parallel movement of dominant seventh chords, contrasted in the intervening measure with parallel movement of augmented triads (Ex. 30-22). The term planing, essentially synonymous with parallelism, is frequently used to describe this device when it occurs in twentieth-century music—perhaps to avoid the pejorative connotations of the formerly used term.

Example 30-22. Debussy, "Nuages," from Nocturnes (piano reduction)

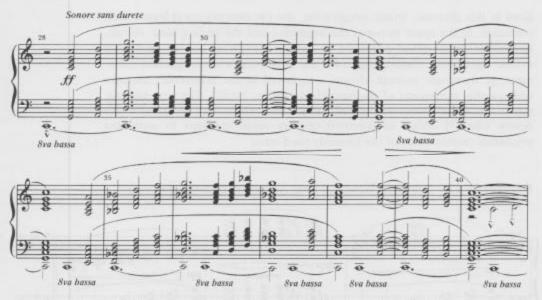


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Following the first beat of mm. 61 and 63 the melody outlines the pitches of a dominant ninth chord on Ab, enharmonically respelled for convenience. The planing observed in this example is referred to as strict, since the vertical

intervals remain unchanged. This type of parallel motion will inevitably require a substantial number of accidentals, since such consistent chord quality does not normally occur within a diatonic key; as a result, the feeling of tonal center will be unclear. In contrast, diatonic planing involves parallel movement of vertical sonorities whose quality is determined by the prevailing diatonic scale. Example 30-23 shows parallel triads used to harmonize a chantlike melody in C.

Example 30-23. Debussy, "La Cathédrale engloutie," from Preludes, Book I



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The pedal on C and the rhythmic emphasis on C, E, and G all serve to maintain a strong sense of C as tonal center of gravity. Notice, however, that Bb is substituted for B\$ in the melodic line in order to maintain the consonant quality of major and minor triads. Although the Bb could suggest a Mixolydian scale on C, the previous establishment of C major causes us instead to hear merely a brief tonicization of the subdominant.

We occasionally encounter parallel chord movement that can be explained neither by consistency of chord type nor by the limitations of a single scale. Such a passage is shown in Example 30-24.

Example 30-24. Debussy, "Fêtes," from Nocturnes (piano reduction)



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In this case, the composer's aim is harmonization of the upper 4th of the chromatic scale below A (A-G#-G-F#-F-E) and this descending chromatic line ultimately determines the quality of the individual sonorities. In Example 30-25 we find the recurrence, in the closing section of the piece, of this chromatic line, harmonized to sound almost functional in the key of A.

Example 30-25. Debussy, "Fêtes," from Nocturnes (piano reduction)



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Obviously, the principle of parallelism may be applied to other structures, such as quintal and quartal chords, as well as to simple melodic doubling at intervals other than the traditional octave,

The second movement of Bartók's Concerto for Orchestra provides us with a virtual catalogue of doublings. The movement opens with a duet for bassoons doubled at the 6th (Ex., 30-26).

Example 30-26. Bartók, Concerto for Orchestra, II (reduction)



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This is followed by a passage featuring new material for oboes, doubled at the m3, with an occasional M3 (Ex. 30-27).

Example 30-27. Bartók, Concerto for Orchestra, II (reduction)



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Following a brief transition by the strings, the work continues with other pairs of instruments: clarinets doubled at the m7, flutes doubled at the P5, and trumpets playing in parallel major 2nds. If you are not yet familiar with this masterpiece of orchestral literature, you should make an effort to listen to it in its entirety.

PANDIATONICISM

The technique of pandiatonicism represents an attempt to equalize the seven pitches of the diatonic scale so that no single pitch is heard as tonic. The texture of pandiatonic passages tends to be contrapuntal, while individual lines are likely to be somewhat angular. Example 30-28 is a typical pandiatonic passage.

Example 30-28. Stravinsky, "Danse Russe," from Petrouchka (piano reduction)



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Using C, the lowest pitch, as a reference point, we discover the excerpt to be based on a $\sharp \hat{4}$, $\flat \hat{7}$ scale; yet at no point is the ear permitted to accept C as tonic. In this instance the designation 4+1 scale might prove useful. In another example from the same ballet (Ex. 30-29), E \flat seems to serve as a kind of tonal center.

Example 30-29. Stravinsky, "The Masqueraders," from Petrouchka



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Here the conflicting rhythmic groupings, the prevalence of 2nds in the texture, the quintal harmonies, and the interweaving of multiple ostinato lines (reiterated melodic patterns) create a harmonically static, yet pulsating cluster effect that is saturated with the pitches of the Eb major scale. This quality of harmonic stasis, significant in that it forces the listener to seek out nontraditional determinants of musical shape, plays an important role in later developments.

THE TWELVE-TONE TECHNIQUE

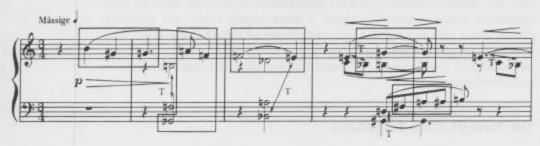
The procedure for composing with twelve tones is perhaps the most methodically revolutionary technique of the twentieth century. It was developed by Arnold Schoenberg, who, after a number of years of composing in the postromantic style, became intrigued with the concept of atonality, that is, the systematic avoidance of permitting any single pitch to sound as tonal

Even before Schoenberg had organized his ideas into an actual method of composition, certain procedures were operational in his music, such as the following:

- 1. Avoidance of the 8ve, either as melodic component or harmonic interval
- 2. Avoidance of traditional pitch collections, that is, any that might suggest major or minor triads, and hence, a tonic
- 3. Avoidance of more than three successive pitches that might be identified with the same diatonic scale
- 4. Use of wide-ranging and extremely disjunct melodies

The Klavierstücke, Op. 11, composed by Schoenberg a numbers of years before his twelve-tone system had been codified, illustrate the application of some of these constructs. Example 30-30 shows the opening measures of the first of the three pieces.

Example 30-30. Schoenberg, Klavierstücke, Op. 11, No. 1



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The tritone is prevalent as a vertical interval, and the composer makes extensive use of the three-note cell that opens the work. The lush, romantic texture of the piano writing is indicative of Schoenberg's close spiritual ties with the preceding era.

The principles mentioned above continue to hold true in much of Schoenberg's twelve-tone music, as well as in that of his early followers, especially Webern and Berg. The system is designed to methodically equalize all pitches of the dodecaphonic scale by the following means:

- A twelve-tone composition is to be based on an arrangement or series
 of the twelve pitches that is determined by the composer. This
 arrangement is the tone row or set.
- No pitch may be repeated until all other pitches have been sounded. There is one exception to this restriction: a pitch may be repeated immediately after it is heard. Repetition may also occur within the context of a trill or tremolo figure.
- 3. The tone row may, within the confines of the system, legitimately be used in retrograde (reversed order), inversion (mirroring of each interval), or retrograde inversion (reverse order of the mirrored form), as shown below in Webern's row that forms the basis for his Symphony Op. 21 (Ex. 30-31).

Example 30-31. Webern, Row forms of Symphony Op. 21



Any one of these forms may be transposed to begin at any pitch level; thus the process may yield up to forty-eight versions of the row (in most instances). It is important to remember that the original series of pitches is in no way comparable to the theme of a theme and variations. While the intervallic arrangement of the row may tend to bring about the recurrence of melodic and harmonic cells, tremendous variety results from the rhythmic manipulation and octave displacement typically found in early twelve-tone works.

When you examine a twelve-tone composition, it is helpful to have immediate access to the forty-eight possible forms of the series. This is most conveniently obtained by use of a matrix or Babbitt square (sometimes called a magic square), illustrated in Example 30-32 with the original or prime form of the series of Example 30-31 shown as its top row of pitches. The inversion zero form is laid out in the first vertical column, from top to bottom.

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Example 30-32.

	0	9	10	11	7	8	2	1	5	4	3	6	
0	A	F#	G	АЬ	E	F	В	Въ	D	C#	C	Eb	0
3	С												3
2	В												2
1	ВЬ												1
5	D												5
4	C#												4
10	G												10
11	Ab												11
7	E			60						10			7
8	F												8
9	F#												9
6	Eb		94										6
	0	9	10	11	7	8 /	2	1	5	4	3	6	

The square may be completed by systematically transposing the interval series of P⁰, beginning on each successive pitch of the I⁰ form (Ex. 30-33). We should mention here that the actual procedure for labeling set forms tends to vary somewhat, depending on the theorist cited. In the writings of earlier twelve-tone composers, we find the term *original* used in place of

prime. The inevitable confusion arising between O (original) and O (zero, which designates the original set of pitches) may have prompted the change in terminology.

Example 30-33.

	0	9	10	11	7	8	2	1	5	4	3	6	
0	Α	F#	G	АЬ	E	F	В	ВЬ	D	C#	С	Eb	0
3	С	A	Въ	В	G	Аь	D	C#	F	Е	Eb	F#	3
2	В	Ab	A	ВЬ	F#	G	C#	C	E	Eb	D	F	2
1	Въ	G	Ab	A	F	F#	С	В	Еb	D	C#	E	1
5	D	В	С	C#	A	Въ	Е	Eb	G	F#	F	Αb	5
4	C#	Въ	В	С	Ab	A	ΕÞ	D	F#	F	Е	G	4
10	G	E	F	F#	D	Eb	A	Ab	С	В	Вь	C#	10
11	Ab	F	F#	G	Eb	E	Вь	A	C#	С	В	D	11
7	E	C#	D	Eb	В	С	F#	F	A	Ab	G	Вэ	7
8	F	D	Eb	E	С	C#	G	F#	Вь	A	Ab	В	8
9	F#	ЕЬ	E	F	C#	D	Ab	G	В	ВЬ	A	С	9
6	Eb	C	C#	D	Вэ	В	F	E	Ab	G	F#	A	6
	0	9	10	11	7	8 /	2	1	5	4	3	6	

Precise intervallic spellings are unnecessary; for example, the half-step transposition of D-F may be represented by Eb-F#, since the music under discussion is not governed by traditional rules of consonance and dissonance. It is advisable, however, to strive for consistency: always choose F# rather than Gb, for example, or vice versa.

The level of transposition for each of the row forms, arranged in ascending chromatic order of beginning pitches, may be found by reference to the index numbers on each side of the matrix. The P⁰ set, for example, transposed up a M3 to begin on C#, would be designated as P⁴. You will note that the index number reflects, in each case, the number of half steps contained within the interval of transposition. The retrograde P⁴ would be labeled as R⁴ and would begin on G.

The construction of the Op. 21 pitch set is an interesting one from many standpoints. Each half of the row is made up of adjacent pitches of the chromatic scale. In addition the second hexachord (set of six pitches) represents the retrograde of the first. Upon comparing R⁶ (the retrograde of the row, transposed up a °5), we discover that it is identical with P⁰. We may then assume that for each transposition of the prime set, there is a matching retrograde pattern; likewise, for each inversion, there will be a matching retrograde inversion form.

This built-in correlation between set forms will, of necessity, reduce the available pitch series to twenty-four possibilities, rather than the usual forty-eight. The term *combinatoriality* is often used to describe this feature. The distinguishing property of a combinatorial set is its capability of generating a number of hexachords that are mutually exclusive, that is, in which no pitches are duplicated.

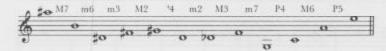
The availability of complementary hexachords will often play an important role in a composer's choice of particular set forms and will tend to bring about maximum structural cohesion in a work. To be sure, not all combinatorial rows exhibit the intricate symmetrical relationships found in Webern's. An exhaustive discussion of combinatoriality is better suited to advanced study in serial techniques than to this introductory chapter. If you would like to pursue these topics further, you should look into the writings of George Perle or Milton Babbitt.

Certain rows, such as those of Example 30-34, have achieved a certain renown, by virtue of their having formed the basis for well-known serial compositions.

Example 30-34. Berg, Tone row for Violin Concerto



Dallapiccola, Tone row for Quaderno musicale di Annalibera



These rows illustrate the care composers lavished on the melodic and harmonic possibilities of the original set. The predominance of the third in the Berg row, for example, plays an important role in bringing about an almost triadic texture within the body of the work. Also in the Berg row, pitches 1, 3, 5, and 7 of the series (bracketed) represent the open strings of the violin, while the last four pitches, which comprise a segment of a whole-tone scale, represent the opening notes of "Es ist genug," the Bach chorale prominently featured in the last movement. The second example, from Dallapiccola's Quaderno musicale di Annalibera, illustrates an all-interval set, in which eleven different intervals make up the series.

Example 30-35 illustrates two processes, both of which occur with some frequency in atonal music. The first is the atomization of the melodic line, a process known as pointillism. The second is the deliberate juxtaposition of minute melodic fragments of contrasting timbre and register; this compositional device, in which melody is in a sense created by the rapid shifting of tone colors, is referred to as Klangfarbenmelodie, or, literally, "sound color melody," and it is a concept that continues to fascinate many composers in the second half of the twentieth century.

Example 30-35. Webern, Concerto, Op. 24



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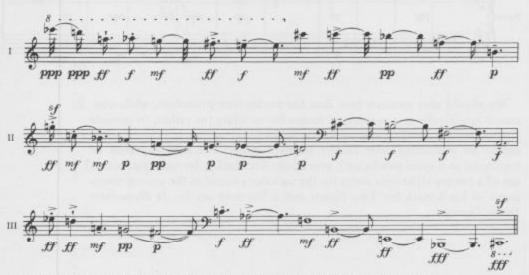


We should also mention here that the twelve-tone procedure, while conceived specifically as a systematic means for avoiding (or rather, to provide alternatives to) tonality, has been adapted by later composers as an effective means for organizing more tonally oriented music. The row may even be employed as a quasi-pandiatonic procedure. Stravinsky, for example, makes use of a twenty-eight-note series for the variations found in the second movement of his Sonata for Two Pianos and a five-note set for *In Memoriam Dylan Thomas*.

TOTAL SERIALIZATION

Inevitably, as composers became fascinated with the concept of ordering pitches, there evolved a keen interest in ordering other parameters of a piece, such as rhythm, dynamics, and articulation. The term serialization, which earlier in the twentieth century had been considered by some to be synonymous with twelve-tone method, came to denote the process whereby such aspects of music as the subdivisions of the beat, dynamic level of individual pitches, and in the case of instrumental music, choice of timbre, were decided on by means of a predetermined rhythmic, dynamic, and/or timbral series. Two composers associated with the origins of this practice are Anton Webern, whose fascination with the problem of ordering we have already observed, and Olivier Messiaen, whose 1949 piano etude, Mode de valeurs et d'intensités, exerted a profound influence upon his pupil, Pierre Boulez. Example 30-36 shows the Messiaen pitch set, along with its rhythmic, dynamic, registral, and attack characteristics, while Example 30-37 illustrates the set used by Boulez in Structures. We perceive Boulez's debt to his teacher in the fact that the pitch set used is identical to Series I of the Messiaen piece.

Example 30-36. Messiaen, Set forms for Mode de valeurs et d'intensités



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Example 30-37. Boulez, Set forms for Structures, Ia

	1	2	3	4	5	6	7	8	9	10	11	12
Notes (P0)	ΕÞ	D	A	As	G	F#	E	C#	C	Вэ	F	В
Durations	A	A	A	١	1.A	1	1	J	A.L	L.A	المرا	J.
Dynamics	pppp	ppp	pp	p	quasi p	mp	mf	quasi f	f	ff	fff	LESS
Mode of Attack	>	۸.	190		normal		,	şfz ↑	7			^

On the introductory page of *Mode de valeurs*, Messiaen explains that he has employed a thirty-six-pitch series (that is, three separate pitch sets, each of which is assigned to a specific register of the piano) and twelve methods of attack as follows:

He notes that there are seven dynamic levels ranging from ppp to fff, while the register is to a certain extent controlled by the pitch series being used. Thus no two appearances of the same pitch class will be identical.

Example 30-38 shows the beginning of the Messiaen work. Clearly the range of dynamic shading called for presents a singular challenge in pianistic control and a still more formidable challenge to even the most sophisticated listener.

Example 30-38. Messiaen, Mode de valeurs et d'intensités



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As you can imagine, the mathematical possibilities for systematic ordering or reordering of sets are virtually limitless, and they continue to present a fascinating avenue of exploration for many composers as well as a challenge for speculative theorists.

There is a striking similarity between two seemingly contradictory compositional processes—namely, the effort to achieve total control and the effort to abdicate control entirely through chance or aleatory procedures. Both these processes reflect a composer's desire to break free from conscious aural choice, thereby discovering sounds or effects that might not otherwise occur to him or her. Later in the chapter we will turn our attention to various aspects of aleatoric composition. First, however, we will discuss some experiments in rhythm and meter that preceded the move toward multiparametric serialization (the serialization of several aspects of a composition, as we have just discussed).

RHYTHM AND METER

Because the study of pitch associations constitutes the primary bulwark of the traditional tonal system, it would seem reasonable that most attempts to establish alternative systems of organization would tend to concentrate on that area. Nonetheless, the mainstream of early twentieth-century composition saw significant innovations in the areas of rhythm and meter, procedures that impart a distinctive twentieth-century flavor to the music involved.

Primarily, these efforts lay in escaping from the established norm of regularly recurring pulses subdivided into groupings of two or three. Various methods have been employed to this end, with an enormous variety of results. Perhaps the commonest of these is that of asymmetric meter such as $\frac{5}{4}$ or $\frac{7}{8}$, or a composite meter such as $\frac{3+3+2}{8}$, which we encounter frequently in the music of Bartók. These are used to provide what we might describe as a "regular irregularity" in that the groupings in a $\frac{5}{4}$ piece are likely to occur consistently as either 2+3 or 3+2. When these two groupings alternate, however, the effect becomes one of considerably more unpredictability. A composer may achieve this desired irregularity by cross accentuation, as seen in Example 30-39.

Example 30-39. Copland, Billy the Kid, "Mexican Dance and Finale" (piano reduction)



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A composer may achieve much the same aural effect by the use of rapidly changing meter signatures-a process known as mixed meter. This technique is illustrated in Example 30.40, where we also observe irregular subdivision of the 5 measures.

Example 30-40. Adler, "Capriccio"



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Both these procedures provide the listener with a sense of intense rhythmic activity coupled with constantly shifting metric accentuation. Since the effect upon the listener is one of unequal groupings of subdivisions being added together, the process is sometimes referred to as additive rhythm.

The term polyrhythm has been coined to denote a musical texture in which the listener is made aware of multiple rhythmic streams or layers in operation simultaneously, each responding to an independently recurring metric accent. In some instances the listener may be unaware of the presence of any downbeats in the texture. In the following example from Le Sacre du printemps, four different ostinato patterns occur simultaneously. The aural effect thus created is one of a hovering, static sound mass, almost hypnotic in quality.

Example 30-41. Stravinsky, Le Sacre du printemps (reduction)



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The term *polyrhythm* is sometimes confused with another term in common usage, *polymeter*. We use the former to denote the aural phenomenon of simultaneous rhythmic streams, and the latter to refer to the notation of two or more meters at once. It is possible for a passage to be polyrhythmic and polymetric at the same time, as shown in Example 30-42.

Example 30-42. Stravinsky, "Danse de la foire," from Petrouchka (piano reduction)



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The effect of this passage upon the listener may imply a total lack of barlines. He or she is rather aware of a constant triplet background against which seemingly spontaneous bursts of rhythmic activity occur. You should keep in mind that *Petrouchka*, which we most often hear performed in the concert hall, was first composed as a ballet score. In this particular scene, the conflicting musical events represent specific actions taking place on the stage.

The system of metric modulation, developed by Elliott Carter, represents yet another form of rhythmic experimentation, namely, an intense focus on, and exploitation of, minute mathematical relationships as a means of precisely controlling the flow of the music. In Example 30-43, we see the duple pulse being systematically stretched, through the interpolation of added subbeats, from $\stackrel{\checkmark}{\bullet} = 126$ to $\stackrel{\checkmark}{\bullet} = 72$. Fourteen measures later, we find that the quarter-note beat has been compressed to a value of 90, through the use of sixteenth-note quintuplet subdivisions, from which the subsequent "normal" sixteenth-note subdivision derives its duration,

Example 30-43. Carter, Fantasy for Woodwind Quartet



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Because of the complexity of this procedure and the rapid shift of the rhythmic groupings involved, the listener's perception tends to be one of little or no feeling of pulse, although recurring rhythmic cells may be noted.

The final rhythmic concept we will present is that of added value, which is not to be confused with additive rhythm, mentioned earlier. Like metric modulation, this process—developed largely by Olivier Messiaen and described at length in his book The Technique of My Musical Language—creates rhythmic irregularity through the addition of a note, a dot, a tic, or a rest to what otherwise appears to be a perfectly regular rhythmic pattern. For example, consider the following grouping:

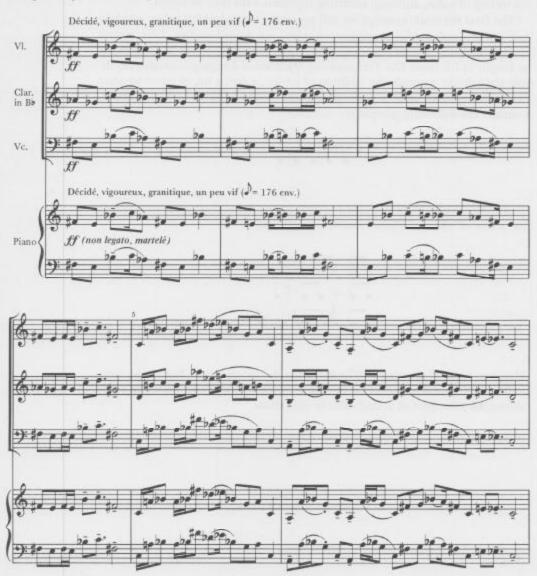


This figure might be transformed in any of the following ways, to mention but a few of what are almost limitless possibilities:



Messiaen himself admits to a fondness for the subtleties of Indian rhythms, and we see abundant evidence of this in much of his music. Example 30-44 shows the principles of added value in operation.

Example 30-44. Messiaen, "Dance of Fury for Seven Trumpets," from Quartet for the End of Time



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The opening two measures, except for one sixteenth beat, would fit a \$\frac{4}{2}\$ framework. The third measure contains one eighth-note value too many, while the fourth measure has been lengthened by three sixteenths. As the movement proceeds, any comparison with a time signature becomes pointless; in fact, the listener would have difficulty perceiving an implied regular meter even at the beginning.

ALEATORY OR CHANCE MUSIC

Aleatory refers to music in which various elements of a composition are, in varying degrees, determined by chance. While the term is essentially a twentieth-century addition to the vocabulary of music, the idea of chance is by no means new to the realities of musical performance. Composers have long been at the mercy of poor performers, inadequate instruments, coughracked audiences, and imprecise musical notation. We can also mention the time-honored practice of improvisation, encompassing the baroque continuo part, the realization of a classical concerto cadenza, and certainly the virtuoso group improvisation associated with jazz.

The application of chance to music composition may manifest itself in one of two ways: the overall plan of the piece may be precisely notated, with specific details left either to the performer or to chance, or the compositional process itself may be indeterminate. The best-known, and perhaps the earliest, advocate of indeterminacy as a valid approach to music performance and composition is the American John Cage. His Imaginary Landscape for 12 Radios is a model of precise notation. Each pair of twenty-four performers is furnished with a radio and an individual part, on which is indicated tuning, volume, and tone control. There is, in addition, a conductor equipped with a stopwatch. Obviously, despite the precision of performance instructions, every performance will differ greatly from every other one, dependent upon geographic location and time of day. A performance in New York City, for example, will always be a totally different experience than one in Omaha, Nebraska (where the premiere performance took place in 1951).

The piece with which Cage is most widely identified may well be the one entitled 4'33". The first performance took place at Woodstock, New York, on August 29, 1952, and featured David Tudor, a pianist and longtime professional associate of Cage. The piece consisted at that time of three movements, the beginnings of which were indicated by the closing of the keyboard lid; the opening of the keyboard lid signaled the end of each movement. For the duration of each movement (33", 2'40", and 1'20" respectively), the pianist remained motionless on stage. The published score of the piece consists of a

single page, and gives the playing instructions "Tacet" for each movement. It further specifies that the work is "playable" by any instrument or instrumental ensemble, and that it may last any length of time. The chief importance of this seemingly tongue-in-cheek work, whose aural effect relies entirely upon miscellaneous noises occurring in the concert hall, lies in the obligation it places upon the listener to incorporate what would normally be disturbing noises (a cough, the hiss of a radiator, the rustling of a program, a plane passing overhead) into the framework of a musical experience.

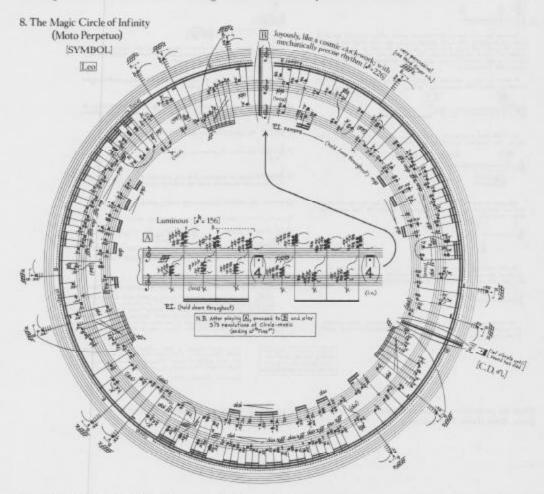
Cage's pioneer efforts inspired a host of followers, and the result was an incredible diversity of musical endeavor. The length to which Cage disciples have carried his original ideas may be seen in a group of pieces by Max Neuhaus, composed between 1966 and 1968. The set comprises six sound-oriented compositions, specifically designed for a situation other than that of the concert hall. The first of these, "Listen," specifies that the audience, who arrive expecting a concert or lecture, are to be put on a bus, have their hands stamped with the word "Listen," and then driven through an existing sound environment. One such "performance," for example, took place in the Consolidated Edison Power Station at Fourteenth Street and Avenue D in New York City. "Drive-In Music," the fifth piece in the group, is designed for people in automobiles. The original score consists of a street map of a small area in Buffalo, New York, designating the streets along which the listener is to drive. At various locations along the route, radio transmitters, which may be heard only through an AM radio, are mounted on telephone poles or trees. Their broadcast areas are designed to overlap, so that at any given time the listener is hearing a combination of signals. Since the actual "music" heard by the concertgoer is subject to such a multitude of fluctuations, brought about not only by the choice of sounds (which might range anywhere from noise to snippets of classical repertoire), but also by the weather, speed of travel, engine noise, and so on, we simply cannot conceptualize or describe the resulting musical effect without having experienced it. The last piece in the group, "Telephone Access," requires active participation in the composition process by the listener, who is instructed to dial a specific long distance number. Upon reaching the number, which is hooked into an electronic sound system, the caller pronounces individual words that are then transformed into electronic sounds and immediately played back over the phone line.

Compositions such as those just described tend, of necessity, to be notated either by means of specific verbal instructions, or in a graphic manner. The earliest use of graphic notation was often viewed as a means of saving the composer tedious hours of copying, while providing a more dramatic and descriptive representation of his or her musical intent to the performer. But

the unique notational requirements of some types of aleatoric music spawned an interest in the artistic layout of the score itself, even in the case of music intended for performance by traditional instruments.

One such example, scored for solo piano and showing a great deal of pitch and rhythm detail, is illustrated in Example 30-45, by George Crumb.

Example 30-45. Crumb, "The Magic Circle of Infinity," from Makrokosmos I

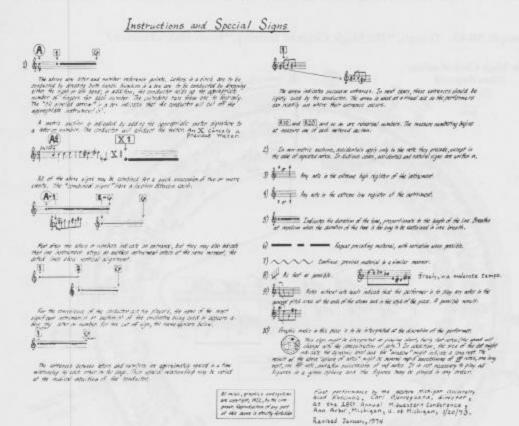


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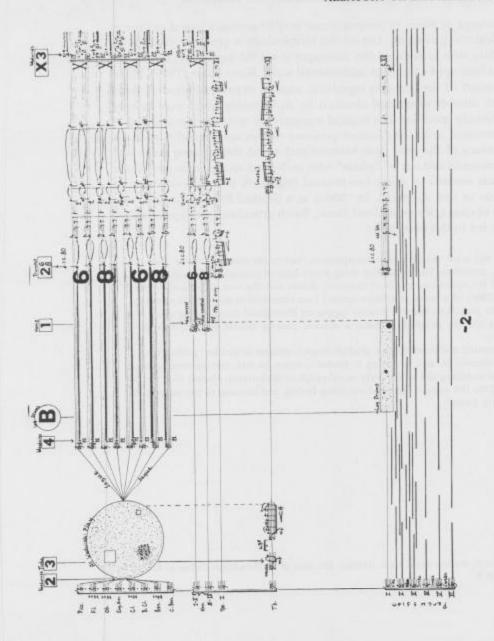
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Finally, graphic notation can be a means of indicating the nontraditional use of instruments, as in Example 30-46, by William Penn.

Example 30-46. Penn, Designs (performance directions and page 2 of score)



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The concept of phase or process music may be seen as a logical extension of the aleatoric procedure. Use of this terminology is generally credited to Steve Reich, who introduced the technique in a 1965 tape piece, It's Gonna Rain, and later applied it to an instrumental work, Piano Phase (1967). Phase music consists of the constant repetition, over an extended period of time, of a given number of musical elements by an ensemble which may or may not be precisely specified. The musical segments are most often performed in a predetermined order; the unique property of this music results from the indeterminacy of the time lapse between each event, thus causing the instruments to move in and out of "phase" with each other as the music progresses. Piano Phase consists of thirty-two musical fragments, to be played either by two pianos or two marimbas. In "Music as a Gradual Process," taken from his book of essays, Writings about Music, Reich articulates the type of thinking which led to this procedure:

I do not mean the process of composition, but rather pieces of music that are, literally, processes. The distinctive thing about musical processes is that they determine all the note-to-note (sound-to-sound) details and the over all form simultaneously. (Think of a round or infinite canon.) I am interested in perceptible processes. I want to be able to hear the process happening throughout the sounding music. To facilitate closely detailed listening a musical process should happen extremely gradually.

Performing and listening to a gradual musical process resembles: pulling back a swing, releasing it, and observing it gradually come to rest; turning over an hour glass and watching the sand slowly run through to the bottom; placing your feet in the sand by the ocean's edge and watching, feeling, and listening to the waves gradually bury them.*

*Steve Reich, Writings about Music (Halifax: The Press of the Nova Scotia College of Art and Design, 1974), p. 9.

TEXTURE AND ELECTRONIC MUSIC

We have seen how texture has played an increasingly significant role in the evolution of twentieth-century musical thought, particularly insofar as it represents a means of organization free from the traditional restrictions of key and chord. Even in Debussy we find an unusual preponderance of unaccompanied, angular melodies, figuration independent of functional considerations, and vertical sonorities used solely for the sake of color.

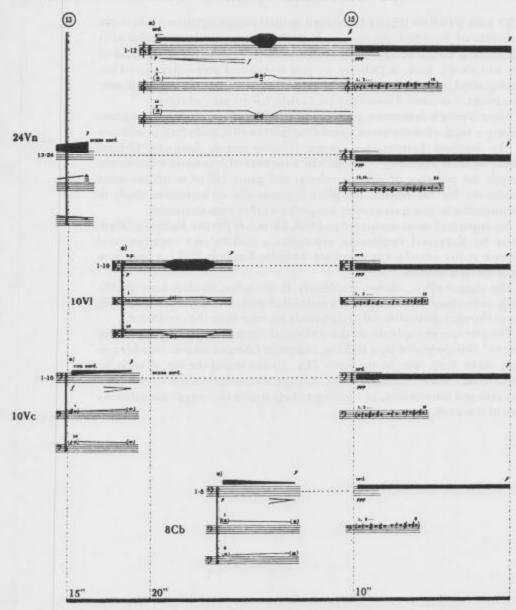
Edgar Varèse's Ionisation, composed in 1931, calls for thirteen musicians playing a total of thirty-seven percussion instruments, including, in addition to the standard battery, two sirens, bongos, guiros, slapsticks, Chinese blocks in three registers, maracas, and a number of less usual instruments. Despite the presence of chimes, celesta, and piano (all of which are saved exclusively for the finale), the piece is essentially an impressive study in nonpitched sonorities; its novelty has perhaps never been surpassed.

An important work composed in 1960, Threnody for the Victims of Hiroshima by Krzysztof Penderecki, represents a striking and unprecedented advance in the use of string sonorities. Examine Example 30-47, a page from the score of this work.

The cluster effect, shown graphically in the score, involves very specific pitch indications on each player's individual part. For rhythmic direction, the performers must obviously rely heavily on cues from the conductor.

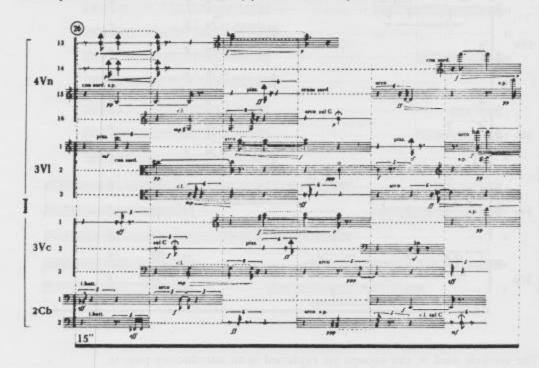
The previous example shows the traditional concept of "chord" or vertical "event" being replaced by a shifting, iridescent fabric of sound. Another passage, taken from later in the work (Ex. 30-48) shows the use of what we might term "noise" brought about through nontraditional use of the fiftytwo stringed instruments, and serving to help define the overall formal structure of the work.

Example 30-47. Penderecki, Threnody for the Victims of Hiroshima

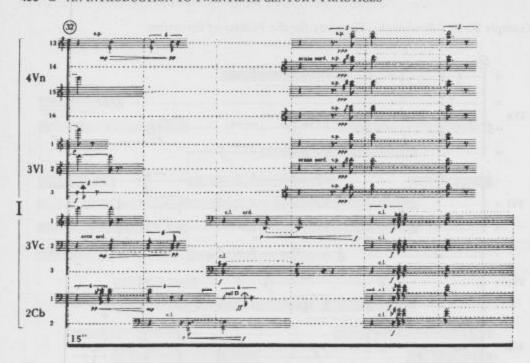


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Example 30-48. Penderecki, Threnody for the Victims of Hiroshima



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The symbols used in this excerpt are explained in an introductory page to the score, shown as Example 30-49.

Example 30-49. Penderecki, Threnody for the Victims of Hiroshima

SKRÖTY I SYMBOLE	ABBREVIATIONS AND SYMBOLS		SIGNES D'ABREVIA- TION ET SYMBOLES	ABKÜRZUNGEN UND SYMBOLE
ordinario sul ponticello sul tasto col legno legno baltuto		ord, s. p. s. t. c. l. l. batt.		
podwyższenie o ¼ tonu	raised by 14 tone	+	hausse la note d'un quart de ton	Erhöhung um ¹ /4Tan
podwyzszenie o ¹ 4 fonu	raised by ³ s tone	+	hausse la note de trois quarts de ton	Erhöhung um ¾ Ton
obniżenie o¼ tanu	lowered by 14 tone		abaisse la note d'un quart de ton	Ernledrigung um %Ton
obnizenie o³s tonu	lowered by 34 tone	d	abaisse la note de trois quarts de ton	Ernledrigung um ³ / ₄ Ton
najwyższy dźwięk instru- mentu (wysokość nieokre- ślona)	highest note of the in- strument (indefinite pitch)	•	le son le plus aigu de l'in- strument (hauteur indé- terminée)	höchster Ton des Instru- mentes (unbestimmte Tonhöhe)
grać między podstaw- kiem i strunnikiem	play between bridge and tailpiece	†	jouer entre le chevalet et le cardier	zwischen Steg und Salten- halter spielen
arpeggio na 4 strunach za podstawkiem	arpeggio on 4 strings behind the bridge	1#	arpège sur 4 cordes entre le chevalet et le cordier	Arpeggio zwischen Steg und Saitenhalter (4 Sai- ten)
grać na strunniku (arco)	play on tailpiece (arco)	+	jouer sur le cordier (arco)	auf dem Saltenhalter spielen (arco)
grać na podstawku	play on bridge	+	jouer sur le chevalet	auf dem Steg spielen
efekt perkusyjny: uderzać w górną płytę skrzypiec żabką lub czubkami pal- ców	percussion effect: strike the upper sounding board of the violin with the nut or the finger-tips	£	effet de percussion: frap- per la table de dessus du violan avec le talon de l'archet ou avec les bouts des doigt	Schlagzeugeffekt: mit dem Frosch oder mit Fingerspitze die Decke schlagen
kilka nieregularnych zmian smyczka	several irregular changes of bow	πv	plusieurs changements d'archet irréguliers	mehrere unregelmäßige Bogenwechsel
molto vibrato	molto vibrato	~~~~	molto vibrato	molto vibrato
bardzo wolne vibrato w obrębie ćwierctonu, uzy- skane przez przesuwanie palca	very slow vibrato with a1, tone frequency differ- ence produced by slid- ing the finger	~~	vibrato très lent à inter- val d'un quart de ton par le déplacement du doigt	sehr langsames Vibrato mit 14 - Ton-Frequenzdif- ferenz durch Fingerver- schiebung
bardzo szybkie i nieryt- mizowane tremolo	very rapid not rhythmi- cized tremala	z	trémolo très rapide, mois sans rythme précis	sehr schnelles, nicht rhytmisiertes Tremolo

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We can see in this music the increased use of illustrative or symbolic notation. This practice has become increasingly popular, commensurate with the increase in the complexity of twentieth-century music. Composers have surmised, and no doubt correctly, that players in an instrumental ensemble will be far more likely to "improvise" awkward, nontonal passages than to expend the effort and practice required to learn them, particularly for pieces that are not part of the standard repertoire.

Various other methods of expanding the coloristic possibilities of traditional instruments include the use of prepared piano (adding thumbtacks to the hammers, placing objects on or between the strings), strumming or hitting the strings inside the piano, Sprechstimme (a cross between singing and dramatic speaking, in which a melodic contour is preserved, but actual pitch is indeterminate), use of exaggerated woodwind harmonics, multiphonics (double or triple stops on woodwind instruments, created by various means), blowing or humming into a disengaged mouthpiece, thus producing a unique tone color, the technique of speech chorus involving shouting, whispering, and so on.

Inevitably, with the mounting interest in coloristic effects, the possibilities for electronic sound generation began to be investigated more closely. The earliest instruments to have practical applications were developed in the 1920s and included the theremin, the trautonium, and the ondes martenot. All three instruments made use of electronic oscillators as tone generators; they differed only in the manner by which the performer played the instrument, Toward the midpoint of the century technical developments in the tape recorder resulted in the growing popularity of musique concrète, in which natural sounds-such as a voice, an instrument, or the ticking of a clock-were first recorded, then subjected to modification by means of altered playback speed, reversed tape direction, fragmentation and splicing of the tape, creation of a tape loop, echo effect, and other timbral manipulations. Although the distinction may not be apparent to the listener, the term electronic music, strictly speaking, refers to music generated synthetically by means of an oscillator. The tones thus obtained may be precisely controlled for frequency, amplitude, and waveform. Further possibilities exist through the use of white noise (which theoretically consists of all the audible frequencies at random amplitudes and suggests a hissing sound), amplifiers, filters, modulators, equalizers, sequencers, and reverberation units.

Since the tape recorder continued to be the only medium for the realization of an electronic score, composers were faced with visual and dramatic problems in an actual concert situation. Many found the solution in combining one or more live performers with prerecorded tape music.

More recently, the digital computer has burst upon the scene with instruments of amazing sophistication and versatility, such as the Fairlight CMI and the Synclavier. These present today's composer with an almost bewildering array of choices and options, including multimedia performances that may feature live computer-generated music coordinated with spectacular light shows. Considering the current dizzying pace of technological development, it is likely that this relative newcomer will play an increasingly significant role in the music world.

SUMMARY AND FORWARD LOOK

We have observed that the early twentieth century was characterized by a curious dichotomy: on the one hand, an extension of postromantic tendencies, while on the other, a conscious (at times almost militant) attempt to establish a totally new musical language. Composers in both camps succeeded in developing distinctly new methods of expression that were clearly indigenous to their age. This early ambivalence has continued to manifest itself in the continuing diversity of musical

Although we have not discussed commercial or popular music in this chapter, we should perhaps mention that these genres alone have maintained strict allegiance to the conventions of tonality, at least up until the mid-twentieth century. Some observers cite this exception as evidence that as the twentieth century progressed, a rift was gradually widening between composers of serious music and the public taste.

No one at present can know just how future historians will regard our era and evaluate the primary direction of our musical culture. Surely no component of musical style-pitch, harmony, rhythm, texture, form-has remained untouched by the stylistic explosion that marked the turn of the century. Yet as the century draws to a close, there seems to be an attempt by many to draw from earlier developments rather than to strike out on totally individual and innovative paths. We can see, in some cases, a fusion of trends that at one time seemed headed in opposite directions. The idea of serialism, for example, which was conceived as a systematic means of escape from the deeply entrenched conventions of tonality, has indeed been pressed into the service of

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what we hear as very tonal music. Recent efforts in electronic music frequently reflect a consolidation of ideas of color and movement from very early in the century. *Third stream* compositions borrow heavily from the jazz idiom, while many contemporary jazz groups perform works that are scarcely distinguishable from today's "serious" concert music. But whatever the direction we seem to be taking, it is indeed a challenging and exciting time in which to be a musician.

EXERCISE 30-1. See Workbook.

INSTRUMENTAL RANGES AND TRANSPOSITIONS

Instrument	Abbreviation	Sounding range	Written range
Flute	Fl.		Same
Oboe	Ob.		Same
Bb Clarinet	Clar. in Bb	2	Treble clef, M2 higher
Bassoon	Bsn.	9 18	Same
Alto Sax	A. Sax	9 00 0	Treble clef, M6 higher
Tenor Sax	T. Sax	9 60	Treble clef, M9 higher
French Horn	Hn, in F	9 &	P5 higher

Instrument	Abbreviation	Sounding range	Written range
Bb Trumpet	Tpt. in Bb	9 06	Treble clef, M2 higher
Trombone	Trb.	9 8	Same
Tuba	Tuba	9	Same
Violin	VI.	\$ 00 mm	Same
Viola	Vla.	B	Same
Cello	Vc.	9 60	Same; tenor clef also used when convenient
Bass	D.B.	9 0	P8 higher

ANSWERS TO SELF-TESTS

The answers given to certain kinds of Self-Test problems must be considered to be suggested solutions, since more than one correct answer might be possible. When you have questions, consult your instructor.

CHAPTER 1

Self-Test 1-1

Part A, p. 5.

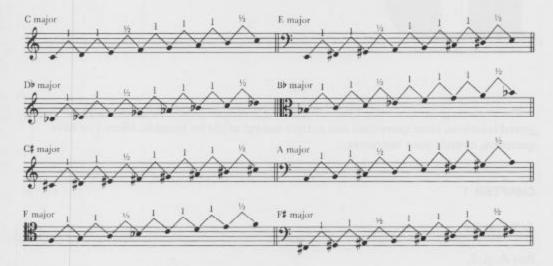
1, CC 2, E 3, f 4, b1 5, a2 6, g3 7, d4

Part B, p. 5.



Self-Test 1-2

Part A, p. 11.



Part B, p. 11.

1. Ab 2. E 3. F 4. Eb 5. G 6. Gb 7. C#

Part C, p. 11.



Part D, p. 12.

 1. Eb
 2. C#
 3. two sharps
 4. F
 5. four flats

 6. five sharps
 7. Gb
 8. two flats
 9. G
 10. Db

 11. six sharps
 12. seven flats
 13. E
 14. three sharps

Self-Test 1-3





Part B, p. 16.

1. g 2. e 3. c# 4. f 5. ab 6. d# 7. eb

Part C, p. 16.



Part D, p. 16.

1. one flat 2. cb 3. c# 4. three sharps 5. d#

6. five flats 7. seven sharps 8. g 9. four flats 10. two sharps

11. c 12. seven flats 13. e 14. g\$

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Self-Test 1-4

p. 18.

 1. 2
 2. 5
 3. 7
 4. 1
 5. 3

 6. 4
 7. 8
 8. 6
 9. 4
 10. 2

 11. 6
 12. 7
 13. 8
 14. 3
 15. 5

Self-Test 1-5

Part A, p. 19.

All are "P" except 4 and 7.

Part B, p. 20.

 1. M
 2, m
 3, m
 4, M
 5, m

 6. m
 7, m
 8, M
 9, M
 10, m

Part C. p. 20.



Self-Test 1-6

Part A, p. 22.

1. +5 2. °7 3. M3 4. °4 5. +2 6. m7 7. °5 8. °8 9. +6 10. +4

Part B, p. 23.

1. P5

2. m2

3. 97

4. m6

5. +4

6. M7

7. M3

8. 93

Part C, p. 23.



Part D, p. 23.

1. m3

2. Pl

3. m6

4. P8

5. M3

6. P4

7. m3

8. °5

9. m2

10. +1

11. m2

12. M7

CHAPTER 2

Self-Test 2-1

Part A, p. 26.

1. 2

2.4

3. 3

4.8

5. 7

6. 5

7.6

8.4

9.2

10.12

Part B, p. 27.

1 triple

2. duple (or quadruple)

3. quadruple (or duple)

4. duple (or quadruple)

5. triple

Part C, p. 27.

1. Bb

2. Ab

3. E

4. D#

5. E

6. B

7. Bb

8. Eb

9. Ab

10. A

11. G

12. G#

13. F

14. C#

15. C#

Self-Test 2-2

p. 28.

- 1. simple quadruple (or simple duple)
- 2. compound duple (or compound quadruple)
- 3. simple triple
- 4. simple duple (or simple quadruple)
- 5. compound duple (or compound quadruple)

Self-Test 2-3

Part A, p. 36.

1. simple quadruple 1; 1 2. 1: 8

3. simple duple; D; A

4. 0.; 4

5. simple triple; 3; 3 6. compound quadruple; 1; 16

Part B, p. 36.

1. 7

2. 7 (or 7 7) 3. 7 2 (or 7 2 7) 4. 7

5. 🐔

Notice that - would not be a good answer for no. 3, since this rest would obscure the beats in the measure (see pp. 33-34).

Part C, p. 36.

2. 4 or 2 or C or C 3. 8 4. 16 5. 8

6, same as no. 2

Part D, p. 37.

ועעקהתועקה נפים ונותתונענים. Part E, p. 37.



Part F, p. 37.

- 1. simple duple (or quadruple); 2 (or 4) over some note value (1, 2, 4, 8, etc.)
- 2. compound quadruple (or duple); 12 (or 6) over some note value
- sounds like compound duple or compound single, but notated as simple triple (see p. 32); 3 over some note value
- 4. simple quadruple (or duple); 4 (or 2) over some note value
- 5. compound duple (or quadruple); 6 (or 12) over some note value

Part G, p. 38

 1. f
 2. G
 3. c‡
 4. A
 5. Bb

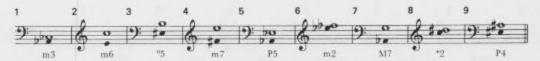
 6. c
 7. D
 8. Eb
 9. b
 10. F

 11. g
 12. f‡
 13. E
 14. Ab

Part H, p. 38.



Part I, p. 38.



CHAPTER 3

Self-Test 3-1

Part A, p. 40.

1. bb: Bb/Db/F

2. E: E/G#/B

3. go: G/Bb/Db

4. fo: F/Ab/Cb

5. c: C/Eb/G

6. D+: D/F#/A#

7. A: A/C#/E

8. d: D/F/A

9. Gb: Gb/Bb/Db

10. B: B/D#/F#

11. ab: Ab/Cb/Eb

12. c#: C#/E/G#

Part B, p. 40.

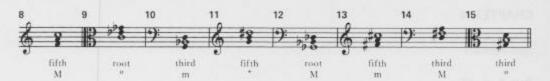


Part C, p. 41.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
Fifth	C#	ВЬ	F≢	D#	Gb	A	E	Cb	G#	В
Third	A	Gb	D	В	Eb	F#	C#	АЬ	E	G#
Root	F	Eb	В	q	СЬ	D#	Α	F	C#	E
Туре	+	m	m	+	M	0	M	0	m	M

Part D, p. 41.





Self-Test 3-2

Part A, p. 42.

1. m7

2. M7

3. 47

4. 47

5. M7 10. Dom 7

6. ⁶7

7. m7 12. °7 8, Dom 7 13, Dom 7 9. M7 14. °7

15. m7

Part B, p. 43.



Part C, p. 43.



CHAPTER 4

Self-Test 4-1

Part A, p. 48.

	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Root				E										
Type														Dom 7
Inversion symbol				4 5										

Part B, p. 48.

	1	2	3	4	5	6	7	8	9	10	11
Root	F				В						
Type	m7	07	M	m	Dom 7	\$7	M	M	Dom 7	#7	M7
Inversion	7	8		4	4 2	6	6	6	7	4 2	7

Part C, p. 49.

1. Schubert.

	1	2	3	4	5	6	7	8	9	10	11	12
Root			Eb								Ab	
Type	M	M	Dom 7	M	M	M	M	M	M	m	Dom 7	М
Inversion symbol	6		6		6		6		6		7	

2. Byrd.

Z. Dyru.		-	2	4	5	6	7
	1	2	3	4	5	0	,
Root	F	C	F	Eb	A	Во	F
Туре	m	M	M	M	0	M	M
Inversion symbol					6		

Gb:

D:

(2)

12-00	==335					
3.	TO:	-	ы.	_		
J.	P-1	Sec	n	е	Е	

	1	2	3	4	5	6	7	8	9	10	11	12	13
Root	E	G#	Α	F	В	F	G	C	D	В	D	G	С
Type	M	07	m	М7	φ ₇	M	Dom 7	M	m7	0	m	Dom 7	M
Inversion symbol		4 5	6	7	4		4 2	6	7	6		7	4

Self-Test 4-2

p. 53.

	2. G M	3. C#°	4. D M	5. D#°
6. D# °7	7. B Dom 7	8. E m	9. F# Dom 7	10. B m
11. E M	12. A M	13. E M	14. A M	

CHAPTER 5

Self-Test 5-1

Part A, p. 58,

1. V	2, iv6	3. ii	4. III ⁶	5. ii
6. viiº	7. 1	8. iiº	9. iii	10. vii ^o
11. V ₄	12, IV	13. i	14. vi	15. III§

Part B, p. 58.

A: (4)



viio Eb:

(3)

(5)

(7)

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Part C, p. 59.

1. IV	2. V	3. IV6	4. V	5. 16
6. IV	7. V	8. V	9. I	10. iii
11. IV	12. iii ⁶	13. iii	14. IV	15. I
16. I	17. V	18. I	19. IV	20. IV ⁶
21. I	22 , ii	23. vi	24. vi	25. V
26. V	27. IV	28. vii ^o 6	29. 1	30. V ⁶
31 . I	32 . I	33. V	34. IV	35. iii ⁶
36. vi	37. iii ⁶	38. IV	39 . I	40. I
41. V	42. ii	43. iii	44. vi	45. iii ⁶
46. IV	47. I	48. I		

Self-Test 5-2

Part A, p. 62.

1. iv ⁷	2. I ^{M6}	3. iii ⁷	4. ii*4	5. VI ^{M7}
6. IV ^{M7}	7. vii ^{\$7}	8. i ⁷	9. vii ⁰⁷	10. vig
11, V ₂ ⁴	12. V ⁷	13. ii [¢] 7	14. iii4	15. I ^{M7}

Part B, p. 63.



Part C, p. 63.

- 46			
		ch	

1. I	2. vi	3. iii	4. IV	5. IV ^{M7}
6. V ₂ ⁴	7. I ⁶	8. ii§	9. V	10. I

2. Schumann.

1. I	2. vii ⁰⁶	3, 16	4. vii ⁰⁶	5. I
6. ii§	7. V	8. I	1.6	10. I ⁶
11. IV	12. I ⁶	13. V4	14. I	15. V

CHAPTER 6

Self-Test 6-1

Part A, p. 69.



- a. Resolve 7 to 1.
- b. Not in a IV chord.
- c. Two leaps should outline a triad.
- d. Two focal points.



- a. Leap of a 7th.
- b. Leap of a +4.
- c. Two focal points.



- a. Not in a iv chord.
- b. Descending leap should be preceded and followed by ascending motion.
- c. Follow leap with descending motion.
- d. Interval of +2.

Part B, p. 70 (sample solutions).



Self-Test 6-2

Part A, p. 73.

$$\frac{i}{C}$$
 / $\frac{i}{C}$ $\frac{V^6}{O}$ $\frac{i}{O}$ $\frac{iv^6}{C}$ / $\frac{V}{O}$ $\frac{V_2^4}{O}$ / $\frac{i^6}{O}$ $\frac{vii^{\circ 6}}{O}$ $\frac{i}{C}$ $\frac{ii^{\circ 6}}{C}$ / $\frac{V}{C}$

Part B, p. 73.



Part C, p. 73 (alternative solutions in parentheses).





Self-Test 6-3

Part A, p. 78.

The progression is G: I / IV I / Vi V / I /

Parallel 6ths: S/A, m. 1; S/T, mm. 3-4

Parallel 3rds: S/T, mm. 1-3; S/B, m. 3





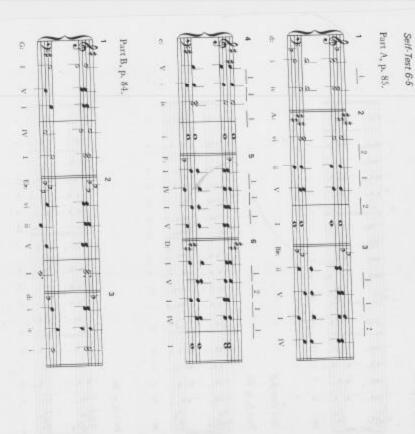
Self-Test 6-4

p. 80 (sample solutions).*

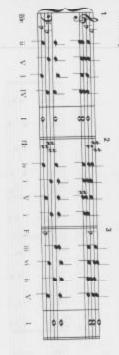




^{*}Solutions to this and similar exercises throughout the book are sample solutions only. Many other correct solutions are possible.



Part C, p. 84.



Self-Test 6-6

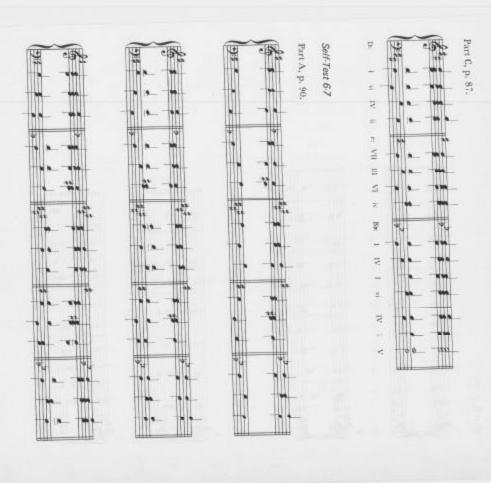
Part A, p. 86.

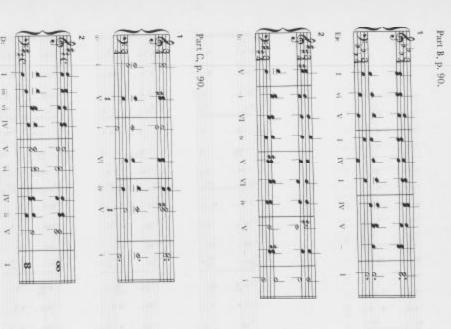


Part B, p. 86.

II VI

1 W is 1 48







Self-Test 7-1

Part A, p. 104.

1. iii or V

2.1 or ii 5. ii or IV

3. I or vi

Part B, p. 104.

3. W III

1. V II 2. VII I

4. none

Part C, p. 105.

t.Bach. I / vi iii IV V / vi V I /

2. Vivaldi, i V6 / i VII6 / III i6 / iV ii ii i6 / V / i6 / iV / iv / V / i/ /i w V6/i w V/i

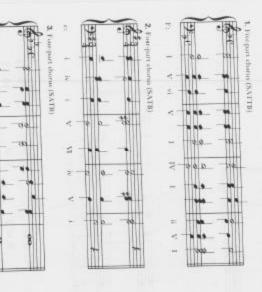
Part D, p. 106.



Part E, p. 106.



Part F, p. 107,



A M IN

4. Four-part chorus (SATB)



5. Three-part chorus (SAB)



Part G, p. 107.



Part H, p. 108.

1. V ₅	2. IV4	3, iv ⁷	4. IM7	5. ii*§
6. vi ⁷	7. V ₂	8, vii°§	9. ii ⁶	10. V ₃
11. iv ₂ ⁴	12. I ⁶	13. VI	14. I ^M §	15. V ⁶

Self-Test 8-1

Part A, p. 117.

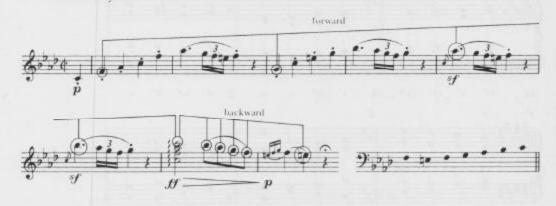
1. The voice leading features parallel 4ths (arpeggiated in the right hand), as in Example 8-7.



2. i / iv⁷ iv⁶ V $V_{\frac{3}{2}}$ / i⁶ vii^o i i / vii^o i V

The i6 and iv6 use the doubling in Example 8-11a; the vii o6 uses Example 8-11b.

3. / i / V_5^6 / / i / vii^{o6} or V_3^4 / i^6 ii^{o6} / V With a little imagination, we can find most of the bass line, both forward and backward, in the melody:



Part B, p. 119.

W





4

Ą

DA WAY





HC

(m.12)

PAC

(m.16)

CHAPTER 9

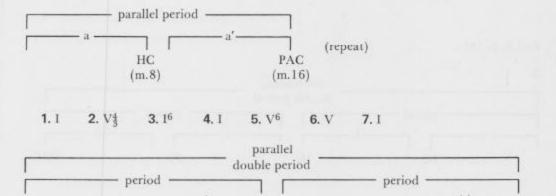
Self-Test 9-1

Part A, p. 137.

1. This excerpt is a repeated parallel period.

HC

(m.4)

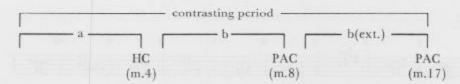


There are modified sequences in the melody in mm. 1-4, 5-6, 9-12, and 13-14.

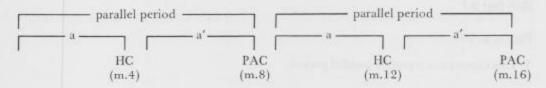
HC

(m.8)

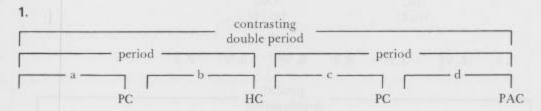
3. Since mm. 1-8 constitute a contrasting period, the whole theme can be heard as a contrasting period with a repeated and extended consequent phrase.

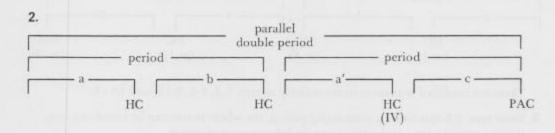


4. This excerpt is a repeated parallel period (not a double period). Octaves by contrary motion occur between melody and bass in mm. 7-8 and mm. 15-16.

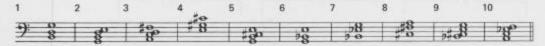


Part B, p. 141.









Self-Test 10-1

Part A, p. 151.

- g: i / iv₄⁶ / / i / vii^o₅⁶ i⁶ / vii^o₅⁶ i⁶ /
 The iv₄⁶ is a pedal six-four chord.
- 2. I V⁶ / IV⁶ I $_4^6$ V⁷ / I IV I / The I $_4^6$ is a cadential six-four.



The I⁶₄ in this example is also a cadential six-four.

Part B, p. 152.



Part C, p. 152.



CHAPTER 11

Self-Test 11-1

Part A, p. 167.

1. Measure	Treble	Bass	
1	p		
2	n	p	
3	7-6		
5	p		
6	p	p	
7	4-3		

2. soprano: p; tenor: p; bass: p, p, p

 $1V^6$

IV

3. The only voice-leading problem seen in the reduction is found in m. 4, where direct 5ths (review pp. 76-77) occur between the I and IV chords. Bach disguised these through the use of passing tones. The parallel 5ths in m. 2 are not objectionable, because the second 5th is a °5 (review p. 76). Slightly unusual is the proportion of chords with a doubled third: four out of sixteen.



Part B, p. 168.

Eb



Part C, p. 169.

Bach, "Herr Christ, der ein'ge Gott's-Sohn"



CHAPTER 12

Self-Test 12-1

Part A, p. 178.

1. m. 1: p; m. 3: p, p, app; m. 4: app, n

2. m. 24: app, app; m. 25: app, app; m. 26: app, p, p

3. m. 72: n, n; m. 74: 7-6; m. 75: 7-6, app, p; m. 76: p, p; m. 77: (melody) ant, (alto) ant



Notice (1) the scalar motion in all voices, inspired, of course, by the melody; (2) the incomplete IV, which contributes to the scalar motion; (3) the root position vii°, appearing here in one of its few typical usages; (4) the 7-3 movement at the cadence—not unusual for Bach in an inner voice.



This is a difficult example that could be analyzed a number of ways. Notice in the reduction (1) how the vi⁶ in m. 1 breaks up the parallel 5ths between alto and bass from the I chord to the ii chord; (2) the melodic sequence in mm. 1-4; (3) the parallel sixth chords in mm. 5-8 (review pp. 112-114).

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Part B, p. 180.



Part C, p. 180.

Mozart, Sonata K. 330, III



CHAPTER 13

Self-Test 13-1*

p. 189.

1. - - I - - - - - V - I
- - I - - -
$$ii\frac{6}{5}$$
 - V - I
 V^{6} - I - - - $ii\frac{6}{5}$ - V - I
 V^{6} - I - IV^{6} - $ii\frac{6}{5}$ - V - I

The a¹ is an anticipation.

^{*}All the levels analyses are subject to other interpretations.

2. Here are two interpretations, the first probably being the better one, since it agrees with the meter:

I - - - - - V - - - - - - I I - - - - V - vi - - - V - I I - IV⁶ - I - V - vi - I⁶ - V - I

I - - - - - 16 - V - I

1 - - - - V - - - I6 - V - I

I - IV6 - I - V - vi - I6 - V -

3. I - - - - - - - V - I

I - - - - - ii⁶ - - - - V - I

I - - - I6 - ii6 - - - - V - I

I - vii⁰⁶ - I⁶ - ii⁶ - vi - - - V - I

 $I - vii^{06} - I^{6} - ii^{6} - vi - I_{4} - V_{1} - I_{5}$

4. The progression ii⁶-vi is relatively unusual. In fact, retrogression would be a better term here, since vi usually lies further away from tonic than ii⁶ does in tonal harmony.

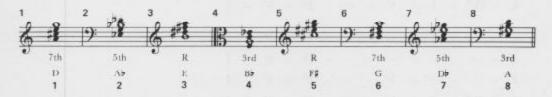
 $i \ - \ - \ - \ - \ - \ - \ i^{06} - \ V \ - \ i \ - \ - \ - \ - \ - \ - \ i^{06} - \ V \ - \ i$

 $i - - - i - - - III - ii^{06} - V - i - - - i - - - III - ii^{06} - V - i$ $i - V - i - VII - III - ii^{06} - V - i - V - i - VII - III - ii^{06} - V - i$

The form is a parallel period. The c2 is an escape tone.

Self-Test 14-1

Part A, p. 202.



Part B, p. 202.

- m. 1 V⁷-vi deceptive progression. With 7 in an inner voice and in the major mode, it may move down to 6 instead of up to 1. The seventh resolves normally. All voices move by step.
- m. 2 V⁷ ornamented by a neighbor and a 4-3 suspension. The V⁷ is complete, but the I is incomplete, due to the resolution of the leading tone in the alto. The seventh resolves down by step.
- m. 5 Another ornamented V⁷, but in this case the leading tone is frustrated, leading to a complete I chord. The seventh resolves down by step.

Part C, p. 203.

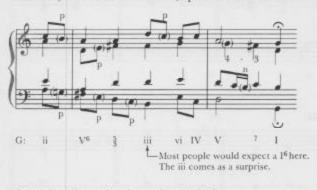


ANSWERS TO SELF-TESTS: CHAPTER 14 [] 543

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Part E, p. 204.

1. Bach, "Kommt her zu mir, spricht Gottes Sohn"



2. Bach, "Jesu, der du meine Seele"



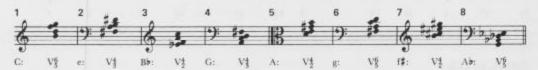
Part F, p. 204.





Self-Test 15-1

Part A, p. 211.



Part B, p. 211.

- The leading tone (g#) resolves up to tonic. The seventh (d) is approached by a suspension figure and resolves down by step to 3.
- The leading tone (f#1) resolves up to 1. The seventh (c2) is approached by a passing tone figure and resolves down by step to 3.
- There is no leading tone in this chord. The seventh (f¹) is approached by an appoggiatura figure and resolves down by step to 3.

Part C, p. 211.



Self-Test 16-1

Part A, p. 222.



Part B, p. 223.

1. iig

2. iit

3. vii 67

5. vii⁰⁷

6. vii4

7. ii47

8. vii 04

Part C, p. 223.



The ii4 has its seventh approached as a suspension (from the previous chord tone). The large leap in the tenor (c1-f#) is necessary because of the motion in the upper voices. The seventh of the vii⁰⁷ is approached as an appoggiatura. The resolution of both tritones leads to a tonic triad with doubled third. In the last measure notice the 5-4 suspension, which "works" because of the dissonance with the g1, and the tonic pedal under the final i-iv7-vii0-i progression.



The seventh of the vii^{67} is approached as an appoggiatura. It is left by arpeggiation, although one could hear it as leading to the b^2a^2 in the next measure.



The seventh of the ii is approached as a suspension. Resolution from the ii is normal, the seventh becoming part of a 4-3 suspension. The main rhythmic motive () appears three times in the vocal part and three times in the accompaniment, alternating between the two.



The seventh of the ii^7 is prepared as a suspension in another voice (the bass in the previous measure). The texture thickens to five parts before the ii^7 resolves normally to the V^7 . The asterisks indicate when the damper pedal is to be released. The reduction below helps us to appreciate Chopin's imaginative elaboration of a simple progression.



Part D, p. 225.







Part E, p. 226.

Corelli, Trio Sonata Op. 3, No. 2, II



Self-Test 17-1

Part A, p. 235.



Part B, p. 236.

1. III^M₅
6. VI^M₄

2. vi

3. iv7

4. #vi 4

5. IM4

- 0

7. IVMg

8. iš

Part C, p. 236.

1. The alto and tenor parts cross, and the soprano is more than an octave from its nearest neighbor (all of this in the second half of the first measure). This certainly could have been avoided (you might try it yourself), but at the expense of the sweeping lines in the inner voices. The seventh of the IV^{M6}₅ is approached as a suspension.



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2. The seventh of the vi⁷ is approached as a suspension. The resolution is slightly unusual in that the ii has a doubled third. But if the tenor had gone to a, the line would not have been as satisfactory, and parallel 5ths would have been formed with the alto.

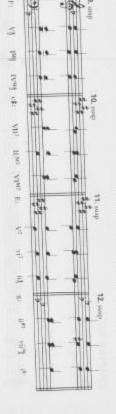


 Circle of 5ths; fifth; it would proceed downward by step, one note per measure: f¹-eb¹-db¹-c¹

i iv
7
 / VII 7 III M7 / VI M7 ii $^{\phi7}$ / V 7 i

Part D, p. 237.

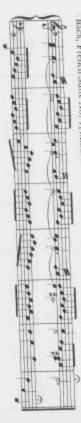




Part E, p. 238.

Notice the similarities between this excerpt and the one in Part C, no. 3.

Bach, French Suite No. 1, Minuet



Part F, p. 238.



Self-Test 18-1

Part A, p. 245.



Part B, p. 246.

1. V6/ii

2. X

3. V_2^4/V

4. X

5. V4/iv

6. Vg/vi

7. V7/III

8. V/V

9. X

10. V₂/IV

11. X

12. V3/VI

13. V⁶/iii

14. V⁷/iv

15. V_3^4/V

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Mm. 1-2 return at a different pitch level in mm. 5-6. This is not really a sequence, since mm. 3-4 intervene. Counting from the bottom, parts 1 and 2 double at the octave. Part 4 doubles 7 (the melody) until the second half of m. 7. Other parallel octaves occur occasionally, as between parts 3 and 6 over the barline from m. 2 to m. 3.





If you hear two phrases, the form is a period. If you hear four, it is a double period. In either case, the construction is parallel, because the phrases that begin in m. 1 and m. 9 begin similarly.



Yes, the four accompanying parts follow conventional voice-leading principles. The melody is an independent line for the most part, but it doubles an inner voice in mm. 2-3.

Part B, p. 255.



Part C, p. 255.

- 1. V(7)/V, V(7)/VII
- 3. V(7)/V, V7/vi
- 5, V(7)/ii, V(7)/vi, V7/IV
- 7. V7/IV, V7/V
- 9. V(7)/III, V(7)/VII

- 2. V(7)/ii, V(7)/V, V7/iii
- 4. V⁷/ii, V⁷/IV
- 6. V(7)/iii, V(7)/vi
- 8. V(7)/III, V(7)/V
- 10. V(7)/iv, V(7)/VII, V7/V

Part D, p. 256.



Part E, p. 256.

1. Bach, "Herzlich thut mich verlangen"

2. Bach, "Christus, der ist mein Leben"











Self-Test 19-1

Part A, p. 260.



Part B, p. 261.

1, vii⁰⁷/vi 6, V⁷/vi 11, vii⁶3/V

Part A, p. 272. Self-Test 19-2

> 12, X 2. N 7. vii⁹⁷/III

13. vii 6/iv 3. vii°6/VI 8. X

4. vii%/IV 9. vii*7/ii 14. vii*6/V

5, vii⁰⁷/VII 10, vii⁰/₂/V 15. X

1 As Asil Agini B V6 } · S





According to the definitions given on pages 156-157, the g^1 is an escape tone. But escape tones are usually followed by a leap in the *opposite* direction (so they seem to be escaping from a stepwise line, as in A-B-G). The g^1 might be heard as part of an incomplete passing tone figure (A-G-F \sharp -E, with the F \sharp omitted) or as an escape tone from the $f\sharp^1$ that occurred a beat earlier (as F \sharp -G-E).



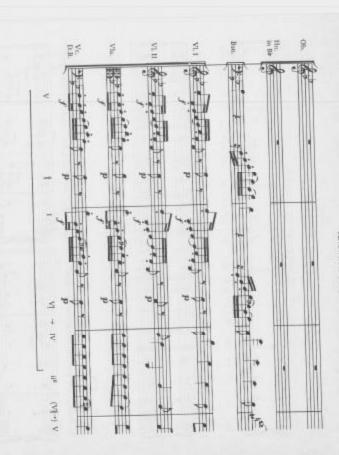
5. The excerpt is not a period, because the second cadence is not more conclusive than the first. The first cadence (m. 4) is a PAC, while the second (m. 8) is a HC.

The 5-4 suspension is marked with an exclamation point because it involves a note that is consonant with the bass resolving to one that is dissonant with the bass, exactly the reverse of the commonly accepted definition of a suspension.



ANSWERS TO SELF-TESTS: CHAPTER 19 D 567





ANSWERS TO SELF-TESTS: CHAPTER 19 D 569

Part B, p. 277.

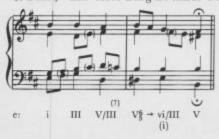


 $f\sharp\colon\quad iv^6\quad vii^{o7}\rightarrow VI\quad C\colon\quad vi\quad vii^{o3}\rightarrow ii^6\quad E\colon\quad I^6\quad vii^{o7}\rightarrow iii\quad G\colon\quad ii_2^6\quad vii^{o3}\rightarrow V^6\quad c\sharp\colon\quad i_2^6\quad vii^{o6}\rightarrow iv^6$

Part C, p. 278.



3. Bach, "Ein' feste Burg ist unser Gott"



Part D. p. 279.



CHAPTER 20

Self-Test 20-1

Part A, p. 284.

1. b

2. Db

3. A

4. ab

5. d

6. F#

7. c#

8. Ab

9. c

10. B

Part B, p. 284.

1. c, d, Eb, F, g

3. Eb, f, g, Ab, Bb

5. E, f#, g#, A, B

2. cb, f, Gb, Ab, bb

4. C#, d#, e#, F#, G#

6. b, c#, D, E, f#

Part C, p. 284.

1. foreign

3. enharmonic

5. relative and closely related

7. parallel

9. relative and closely related

2. closely related

4. closely related

6. closely related

8. foreign

10, foreign

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Self-Test 20-2

Part A, p. 290.

1. The c‡o triad prepares us for the D\(\text{t}\). It seems to smooth out the modulation somewhat.



2. If the last chord in m. 7 were a iig, the seventh (e2) would resolve by step.







5. The outer voices in the sequence in mm. 9-11 could be heard as an elaboration of this pattern:





ANSWERS TO SELF-TESTS: CHAPTER 20 D 575

Part B, p. 294.

1. F 2. A 3. a 4. f# 5. Ab

Part C, p. 294.

1. First key, Ab: I ii IV vi
Triads: Ab bb Db f
Second key, Db: V vi I iii

Second key, Db: V vi I i

2. First key, c: iv V1

Triads: f Ab Second key, f: i III

3. First key, a: i III iv VI
Triads: a C d F

Second key, F: iii V vi I

4. First key, G: I iii V vi
 Triads: G b D e
 Second key, D: IV vi I ii

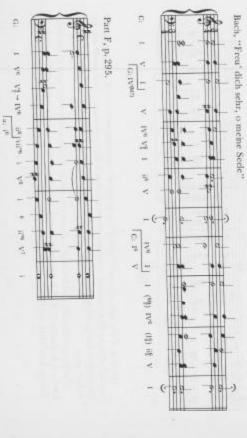
5. First key, c#: iio Ш VI iv Triads: c# d#º f# A E Second key, E: IV vi viio I ii

6. First key, D: I iii V vi

Triads: D f# A b

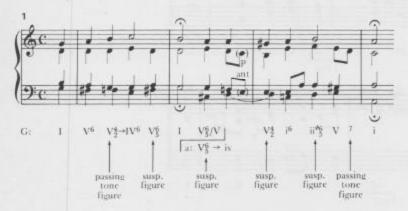
Second key, f#: VI i III iv





Self-Test 21-1

Part A, p. 307.





The note F (in two octaves: f¹ and f²) is retained as a common element between the Db and G⁷ chords. The diatonic common chord analysis is also reasonable. This could also be considered a sequential modulation, although the sequence is aurally apparent only in the "alto" part.

The progression Eb-Ab-Db-G-C-F follows the circle of 5ths, except that one of the 5ths, Db-G, is diminished. A o5 is frequently used in such a progression to avoid ending up in a foreign key. Without the o5 the progression would have been Eb-Ab-Db-Gb-Cb-Fb.

The modulation from g minor to f minor is sequential. The modulation back to g minor is a direct modulation.

g: i /
$$\underbrace{iv^6 / V^7_i}$$
 / f: $\underbrace{iv^6 / V^7_i}$ / i 6 V / i V g: iv / $\underbrace{i\frac{6}{4}}_{V}$ V / $\underbrace{i\frac{6}{4}}_{V}$ V / i

4. The two keys are G major and Eb major. A monophonic modulation is accomplished in mm. 121-123. The relationship between G and Eb could be described in at least two ways. For one, there is a chromatic mediant relationship between the two keys (see p. 303). Also, Eb is VI in g minor, the parallel minor of G major.

Part B, p. 310.



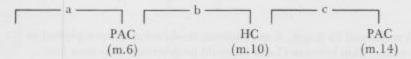
Part C, p. 311.

Bach, "Hilf, Herr Jesu, lass gelingen"



Self-Test 22-1

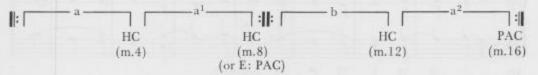
Part A, p. 324.



Or b and c could be considered one phrase. Either way, the form is sectional binary, unless you wish to use the term *phrase group* (review p. 136).

Part B, p. 324.

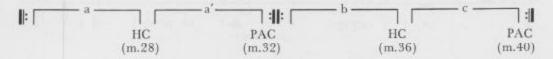
Two-reprise continuous binary.



- 1. The first g1 is the seventh of a V7 of IV. The other is part of a 4-3 suspension.
- 2. End of m. 6: A: I = E: IV
- The melodic figures resemble the opening motive (leap up, stepwise down), while the bass line is related to the first two bass notes.
- 4. m. 7, beat 3.
- 5. m. 7, beat 4 to m. 8, soprano and bass.

Part C, p. 325.

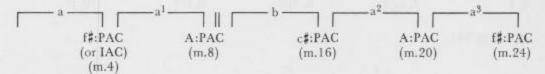
Two-reprise sectional binary.



- 1. The first violins (or the melody) at the octave.
- 2. Part of a viiº6/V.

Part D, p. 327.

Continuous ternary.



- Schumann moves from i to the relative major (III) to the minor dominant (v), and then back the same way (III, then i). The tonicized pitch classes arpeggiate the tonic triad: F#-A-C#-A-F#.
- **2.** A: vii^{07}/ii / ii / V_3^4/V V^7 / I / $f\sharp$: i V / VI^{M7} iv^7 / $i\frac{6}{4}$ V^7 / i / / V
- In mm. 21-22, V-VI^{M7}, there are parallel 5ths between the bass and tenor. They are hidden by the anticipation (a) in the tenor.
- 4. The double bar after m. 8.

CHAPTER 23

Self-Test 23-1

Part A, p. 340.



Part B, p. 340.

1. iiº6

2. iv6

3. vii 4

4. i

5. bVI

6. I

7. vii 06

8. PIII

9. ii 4

10. iv

Part C, p. 341.



2. C: $V^7/I/IV^6/I^6/I^6/I^6/I^6 = V_3^4/I^6 = V_3$

3. The flutes double the violas in mm. 47-51.

4. Mm. 5 and 6 contain diminished seventh chords. Both contain a °5 and a ⁺4, and in both cases the tendency of the °5 to resolve inward and of the ⁺4 to resolve outward is followed. The chords of resolution then have doubled thirds.

$$B\flat\colon \ I^{6}\ /\ V_{\frac{5}{2}}^{4}\ /\ I^{6}\ \ V\ /\ I\ /\ vii^{o7} \to ii\ /\ \widetilde{vii^{o7}}\ \ I\ /\ ii^{6}\ \ V^{6}/V\ /\ V$$

5. The portion in Bb (second half of m. 6 through m. 8) actually sounds like it is completely in bb minor. You will notice there is not a Dt in these measures. But the listener familiar with Mozart's music knows that the bb minor is a sham and that Mozart will almost certainly turn to Bb major (which he does, beginning in m. 9).

Eb: I V⁶ vi vii^{o6}/V / V V
$$\frac{4}{2}$$
 → ii⁶ / V $\frac{4}{2}$ I⁶ ii⁷ V⁷ / I / vii^{o6} / I⁶ i⁶ | Bb: iv⁶ / V⁷ vii^{o7}/V / V





Self-Test 24-1

Part A, p. 351.

1. ii 06

2. vii 47/IV

3. vii^{o7}/ii

4. N⁶

5. N⁶

6. N⁶

7. N

8. iv6

9. V§/V

10. N

Part B, p. 351.



Part C, p. 352.

1. d:
$$vii^{\circ}_{5}^{6}$$
 / i^{6} V_{5}^{6}/iv / N_{5}^{6} $vii^{\circ7}/V$ / i_{4}^{6} V i_{4}^{6} V^{7} i_{4}^{6} / V / V V^{7} i_{4}^{6} / V / V

2. The form is a parallel period with an introduction.







Part D, p. 354.





Self-Test 25-1

Part A, p. 363.

1. Ger+6

2. Fr+6

3. vii 06/V

4. Ger+6

5. vii 4

6. It+6

7. Fr+6

8. ii 4

9. iv6

10. +6

Part B, p. 363.



Part C, p. 364.

 The resolution of the Fr^{*6} is ornamented with a 4-3 suspension in the second violin. The b6 and \$4 expand to an 8ve on 5.

B: I / ii⁶ / V
7
 / I / V⁶ | F\$: I⁶ V⁶/ I IV⁶ Fr*⁶ / V / I /

2. Both 6 and \$\pmu 4 \text{ resolve normally to the 8ve on 5. The parallel 5ths are avoided by arpegiation within m. 27 in most parts. Only the homs are left with the E> at the end of the measure, and they move by leap up to a concert G (\$\frac{5}{2}\$) to avoid creating parallels with the bass (not to mention that the written B\mathbf{m} was almost impossible to play on an E> valveless horn).

c: i /
$$/ VI / vii_{3}^{\alpha_{4}}/V / V^{6} / vii_{3}^{\alpha_{4}} \rightarrow IV^{6} / vii_{2}^{\alpha_{4}} / (i_{4}^{6}) / N^{6} (i_{4}^{6}) / vii_{2}^{\alpha_{4}} / (i_{4}^{6}) / N^{6} (i_{4}^{6}) / vii_{2}^{\alpha_{4}} / Ger^{+6} / V /$$

3. The chromatic passing tone occurs at the beginning of m. 6 in the first violin. In both Ger⁺⁶ chords the viola has the 5th above the bass. The parallels are avoided in the first instance by leaping up to 5. In the second Ger⁺⁶ the parallels are disguised by means of a 6-5 suspension. In the first Ger⁺⁶ the resolution of #4 in the second violin is taken by the viola, allowing the violin to leap up to 2 (the 5th of the V chord).

f: i /
$$vii^{07}$$
 V_5^6 / i / iv^6 / Ger^{+6} / V $vii^{07} \rightarrow$ / V Ger^{+6} / V /

4. In m. 9, #4 moves down by half step to provide the seventh of the V7 chord. In m. 26 b6 and #4 move to an octave on 5.

C: I / / / I
$$V_{5}^{6}$$
 I / I_{4}^{6} V / / I_{4}^{+6} V_{7}^{7} / I V_{3}^{4} / i / It V_{5}^{+6} / V / 7

Part D, p. 369.



Part E, p. 370.



Part F, p. 370.



CHAPTER 26

Self-Test 26-1

Part A, p. 376.

1. Ger⁺⁶ V 2. It⁺⁶ \rightarrow iv 3. V₅⁶ \rightarrow iv 4. Ger⁺⁶ \downarrow I₂⁶ \downarrow V₂ \downarrow V₃
5. iv₂⁴ V₃⁴ 6. [Ger⁺⁶] i 7. ⁺6 V 8. It⁺⁶ V⁶

9. Fr⁺⁶ → I 10. N⁶ vii⁰⁷ → V



Self-Test 27-1

Part A, p. 387.



Other correct answers in addition to those given above are possible. For example, the third chord in no. 2 could have been spelled and analyzed as a viiog in g# (or G#), or as a viiog/V in c#, and so on.

Part B, p. 388.

1. Eb: I /
$$vii^{07}$$
 / I / $V_{\frac{4}{3}}^{4}$ / I^{6} $\frac{5}{3}$ / vii^{07}] Gb: $vii^{04}_{\frac{1}{2}}$ / V^{7} / I / V^{7} / I /

2. e: i
$$V_{\frac{5}{2}}^{4}$$
 / i⁶ ii⁶/₅ / vii⁰/₇/V
Ab: vii⁰/₅ V⁴/₃ / i⁶ V / I /

Part C, p. 389.

1. The F-Gb-F figure in m, 65 may be related to the voice line in mm. 58-62 (Bb-Cb-Bb) and to the bass in mm. 59-63 (F-Gb-F).

Gb: I /
$$V_5^6$$
 / I / V_5^6 / I V^7/IV | bb: Ger^{+6} / V^7 6 i 6 / V 6 i 6 / V

m. 113 Db: vii⁰⁷/vi = c: vii⁰/₂/V

Db: V3

m. 111

Also note the importance of F#/Gb as a melodic pitch in this passage.

4. Bb/A\$\frac{*}{s} is an important pitch class in this passage. It appears melodically as the seventh of the vii⁰⁷/ii four times in mm. 34-41 (the first time accented), and it is used as the enharmonic hinge between the keys of C and E in m. 43.

m. 112

Db: V7

C: I
$$vii^{\circ}g/ii / ii^{6} / V_{g}^{6} / I$$
 $vii^{\circ}f \rightarrow ii$ $vii^{\circ}g \rightarrow ii^{6} / ii^{\circ}g \rightarrow ii^{6} / ii^{\circ}g$

Self-Test 28-1

Part A, p. 411.



Part B, p. 411.



ANSWERS TO SELF-TESTS: CHAPTER 28 0 595





The chords in mm. 5-8 appear to be simultaneities because they do not create a logical progression and because the chord sevenths do not resolve. Parallel 10ths above the bass can be traced throughout these measures.

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